SONY

STEREO VIDEO CASSETTE RECORDER Beta

# SL-2710

## OPERATING INSTRUCTIONS

Before operating the unit, please read this manual thoroughly, and retain it for future reference.

Betahi-fi

This unit can be used with any video cassette tapes having the mark Β.
It is compatible with the ΒII and ΒIII type recording and playback formats, and will play back tapes recorded in the ΒI format.

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# PRECAUTIONS

**On safety**

- Operate the unit only on 120 V ac.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- This unit is equipped with a polarized AC power cord plug (one blade of the plug is wider than the other), which will fit into the power outlet only one way. Should you be unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your dealer for assistance. Do not defeat the safety purpose of the polarized plug.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

**On installation**

- Allow adequate air circulation to prevent internal heat build-up.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, as for example, a microwave oven or a large loudspeaker.
- Do not place any heavy object on the unit.

**On operation**

- When the unit is not in use, turn the power off to conserve energy and to extend its useful life.
- Remove and store video cassettes after recording or playback.

**On cleaning**

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution.
Do not use any type of solvent, such as alcohol or benzine, which might damage the finish.

**On repacking**

Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

# OWNER'S RECORD

The model and serial numbers are located at the rear.
Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. SL-2710 Serial No._____

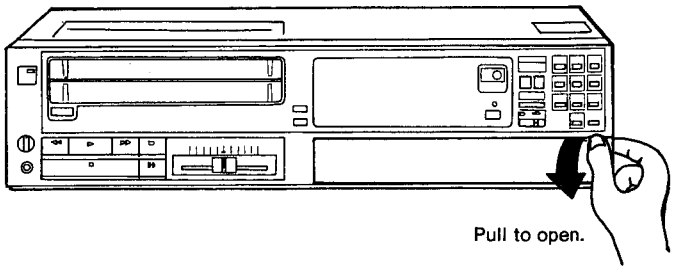
# WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

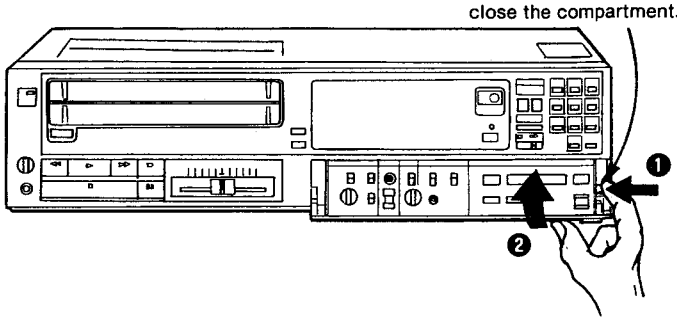
## TO OPEN/CLOSE THE FRONT COMPARTMENT

**To open**




**To close**

While pressing the side button, close the compartment.




**CAUTION**

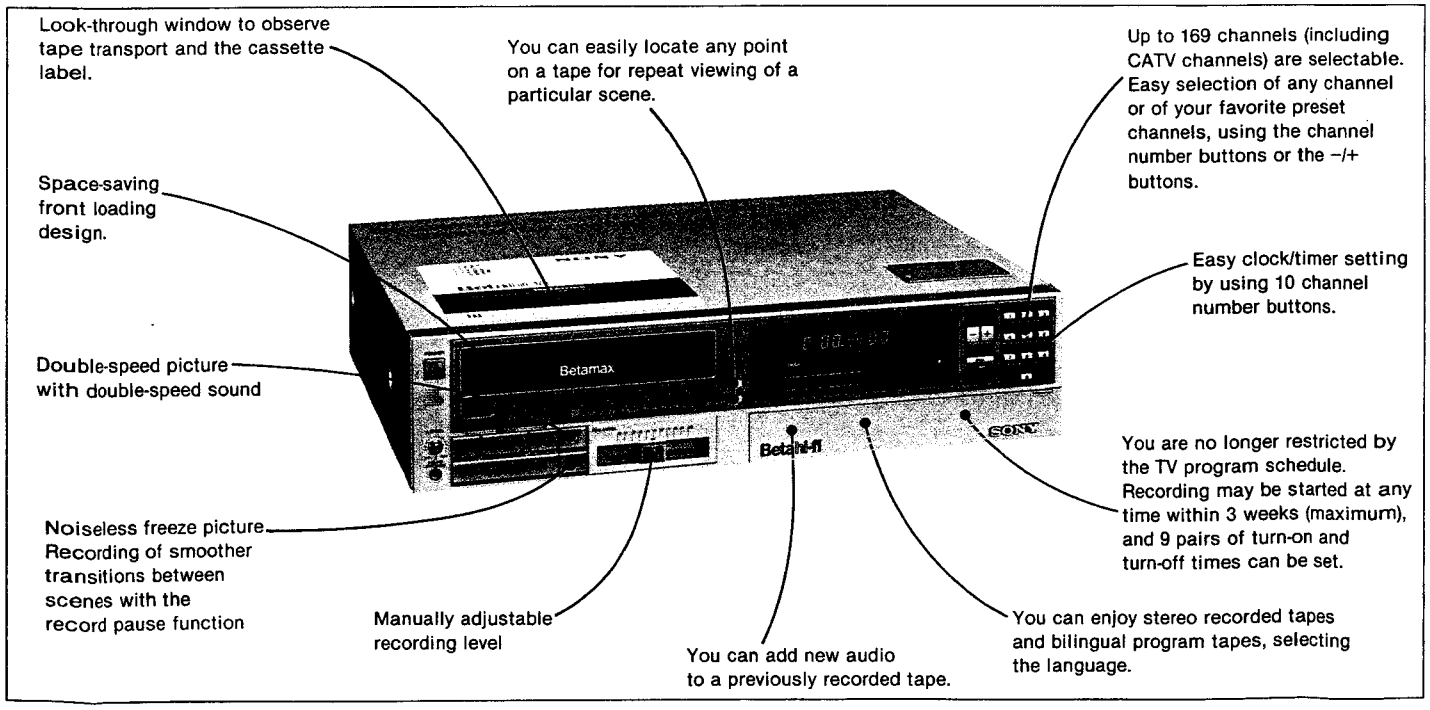
Your Betamax SL-2710 Video Cassette Recorder has been manufactured and supplied to you only for the purpose of enhancing your lawful enjoyment of television and hi-fi audio programming, not for the purpose of inducing or contributing to any illegal activity. The Betamax SL-2710 is technically capable of receiving/recording audio visual programming from a total of 169 television channels (viz, VHF Channels 2 – 13, UHF Channels 14 – 83, and cable t.v. Mid-Band Channels A-8 through I, Super-Band Channels J through W and Hyper-Band Channels W + 1 through W + 58) as well as non-transmitted programming (e.g. from your own video camera); and this operating instructions manual informs you how to utilize this capability. However, there may be some such programming which the Betamax SL-2710 is technically capable of receiving/recording and whose reception/recording falls within the scope of instructions in this manual, but which may not be received/recorded lawfully — for example, cable programming for which the subscription fee has not been paid, copyrighted programming whose recording is not authorized under the law, etc. Use of the Betamax SL-2710 with your cable television system may require authorization from the system operator. Sony Corporation and its distributors of Betamax cannot, and do not, represent or warrant that every technical use which can be made of Betamax is a lawful use.

The U.S. law regarding home video tape recording ultimately will be resolved by the Courts and Congress. As a Betamax user, it is your sole responsibility to be certain that the use made of this Betamax does not violate the law.

If you have any questions about this unit, contact your Sony service facility.

## YOUR NEW FULL-FEATURE BETA HI-FI VIDEO CASSETTE RECORDER

High quality sound reproduction with low noise, minimum wow and flutter, wide dynamic range and flat frequency response is possible thanks to the Beta hi-fi recording system.


Look-through window to observe tape transport and the cassette label.
You can easily locate any point on a tape for repeat viewing of a particular scene.
Up to 169 channels (including CATV channels) are selectable. Easy selection of any channel or of your favorite preset channels, using the channel number buttons or the –/+ buttons.
Space-saving front loading design.
Easy clock/timer setting by using 10 channel number buttons.
Double-speed picture with double-speed sound
Betamax
Beta hi-fi
SONY
You are no longer restricted by the TV program schedule. Recording may be started at any time within 3 weeks (maximum), and 9 pairs of turn-on and turn-off times can be set.
Noiseless freeze picture Recording of smoother transitions between scenes with the record pause function
Manually adjustable recording level
You can add new audio to a previously recorded tape.
You can enjoy stereo recorded tapes and bilingual program tapes, selecting the language.

# CONNECTIONS

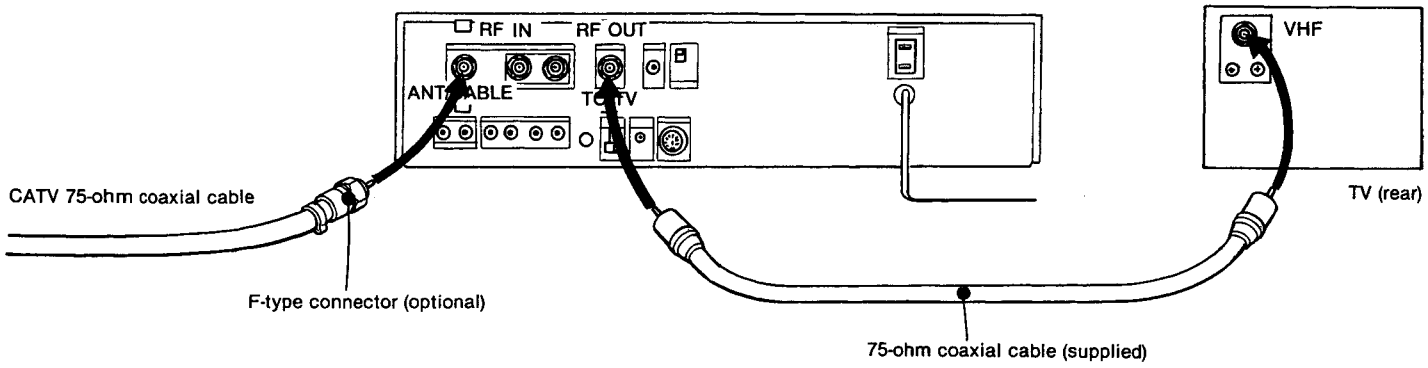
**Before making connections**
- Turn off the TV.
- Connect the ac power cord after all the connections of the video cassette recorder and the TV have been completed.
- Make connections firmly. A loose connection may cause a distorted picture.

## ANTENNA/CABLE AND TV CONNECTION

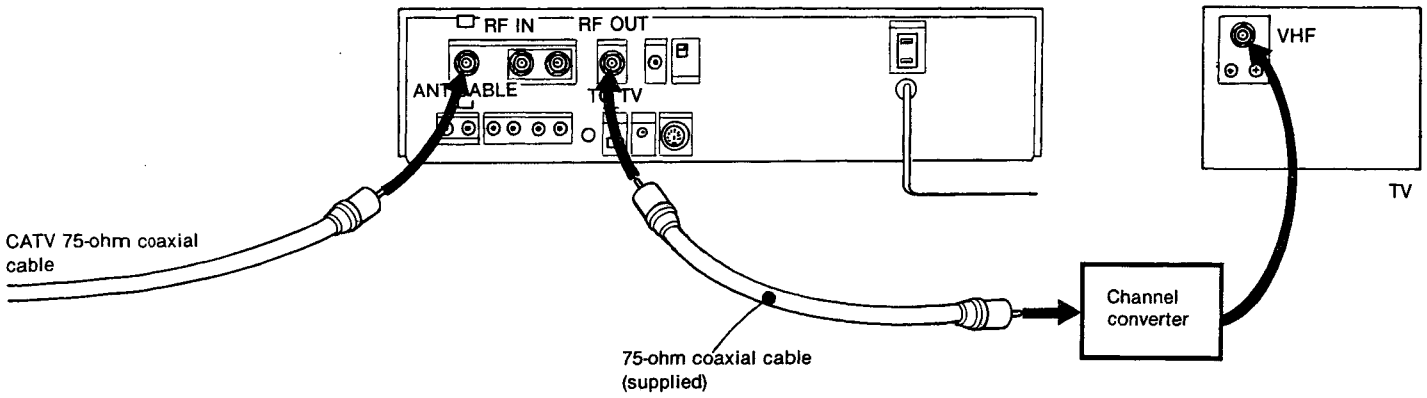
Disconnect the TV antenna cables from the TV receiver and connect them to the recorder, then connect the recorder and the TV.

**CATV cable**

We recommend that you consult your cable company to make sure that the cable is properly connected.




**When a TV is not a CATV compatible type**
Connect the CATV channel converter between the recorder and the TV so that you can watch another CATV program while recording one CATV program. (The PROGRAM SELECT button is set to TV.)



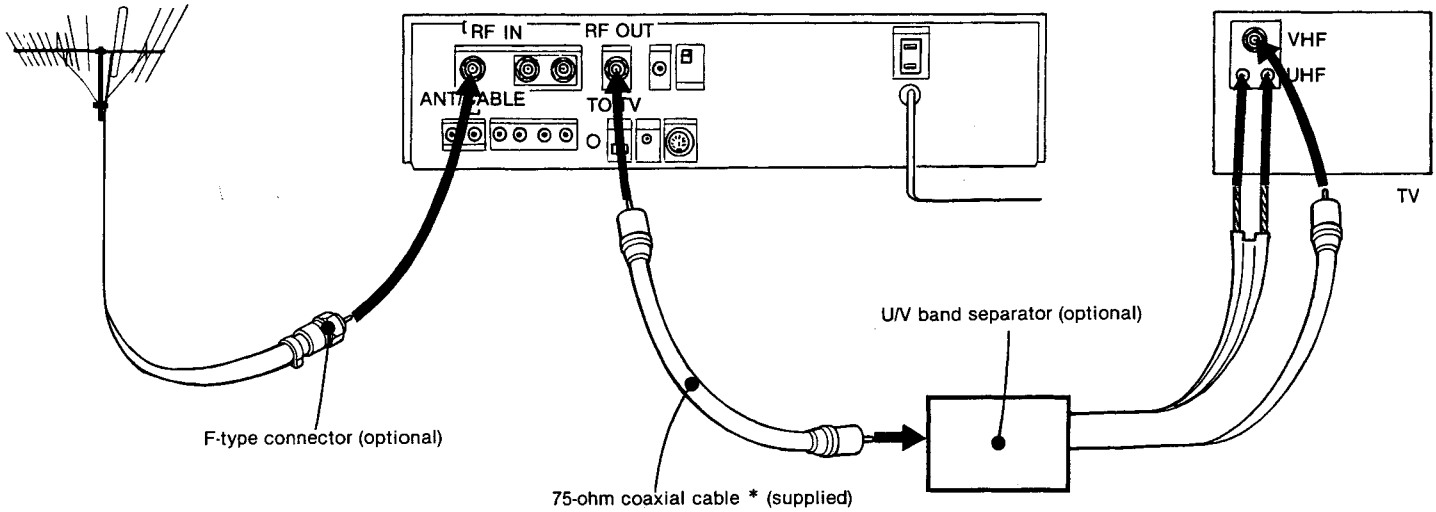

**Note to CATV system installer in the U.S.A.:**

This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

## Combination VHF/UHF antenna

Most combination antennas are equipped with a U/V band separator (signal splitter). Take off the separator and connect the cable directly to the recorder.

Use the removed separator to connect the recorder and the TV.



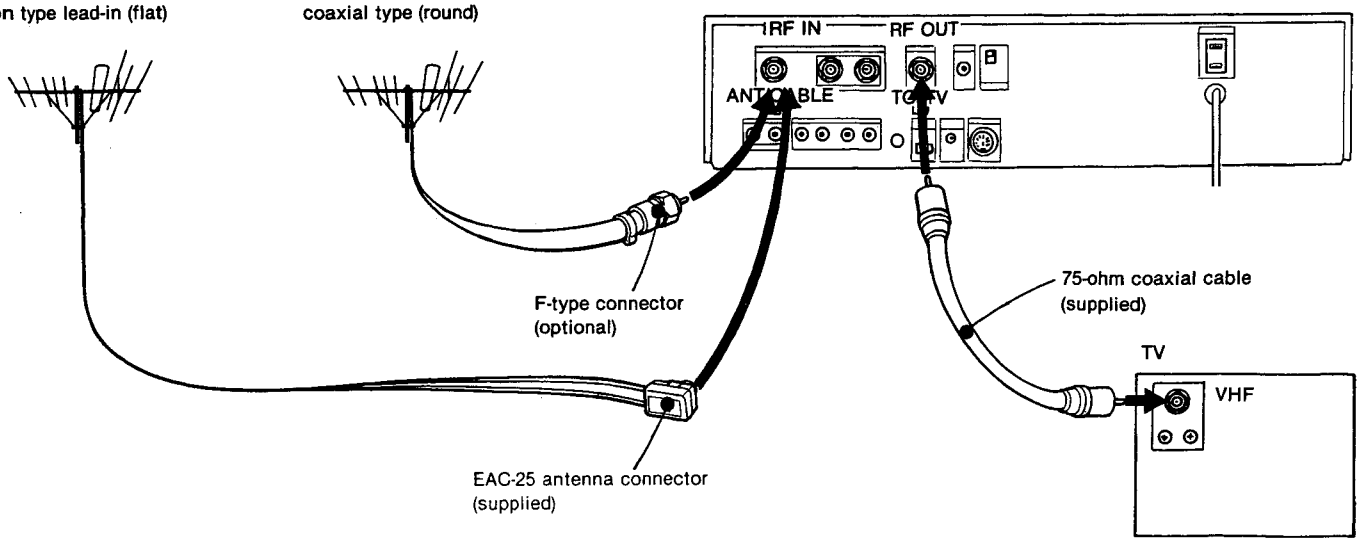

If you need a separator or a complete antenna system, see your Sony dealer or a qualified technician.

* Use an optional RFC-3 extension cable (available in the U.S.A and Canada), 8 m (25 ft) long, if the supplied 75-ohm coaxial cable is not long enough.

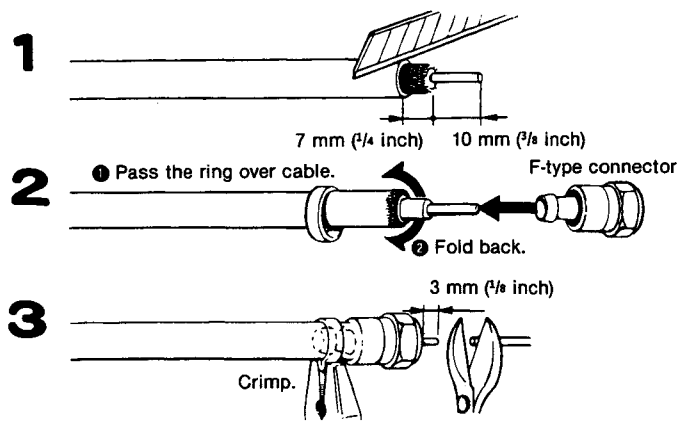
## VHF antenna

When the cable is a 300-ohm ribbon type lead-in (flat)

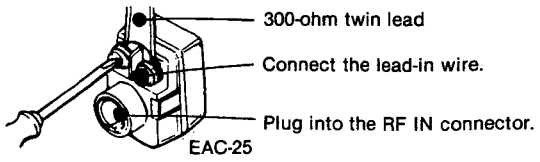
When the cable is a 75-ohm coaxial type (round)




### How to attach an F-type connector

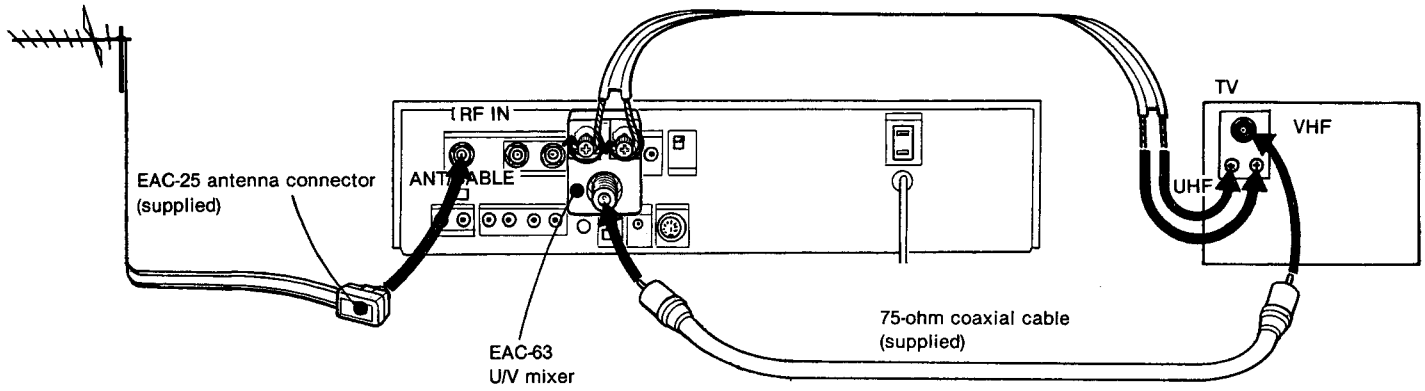


### How to attach an EAC-25 external antenna connector

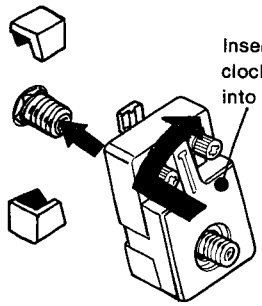


**UHF antenna**

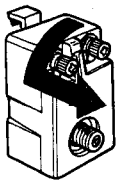
Attach an optional EAC-63 U/V mixer to the RF OUT connector of the recorder, and connect to the VHF and UHF antenna terminals of the TV.




**How to attach an EAC-63 U/V mixer**



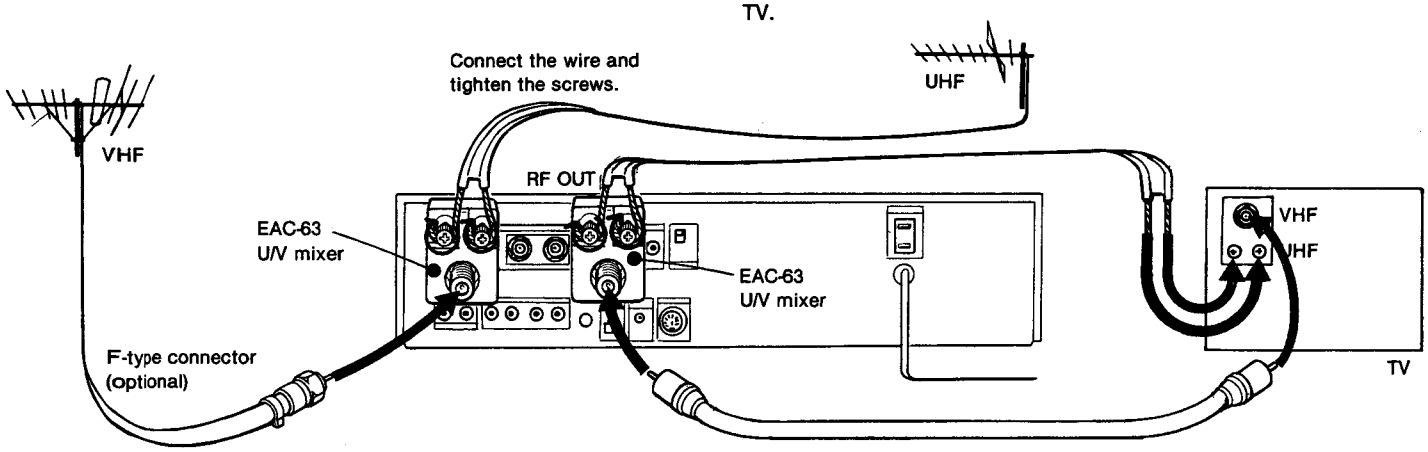

**To remove**




**When both VHF and UHF antennas are connected**

Attach an optional EAC-63 U/V mixer to the RF IN connector of the recorder, and connect the antennas to the U/V mixer.

Then attach another optional U/V mixer to the RF OUT connector of the recorder, and connect to the VHF/UHF antenna terminals of the TV.




**When a TV has a 75-ohm UHF/VHF antenna terminal**

Easy connection of the recorder to the TV can be made with a supplied 75-ohm coaxial cable regardless of the types of antenna.

Once the connections explained above have been made, the antenna TV signals, as well as the signal from the recorder, will be fed to the TV and you can view TV programs in the usual way.

**Caution**

Connections between the recorder RF OUT connector and the antenna terminals of a TV receiver should be made only as shown in these instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission regarding the use and operation of rf devices.

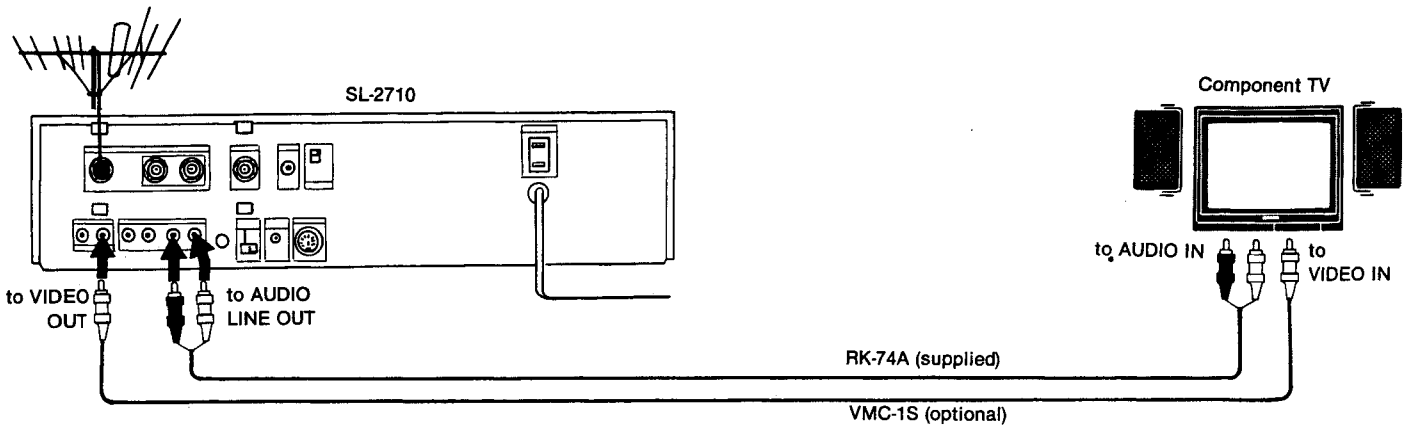
Never connect the output of the recorder to an antenna or make simultaneous (parallel) antenna and recorder connections at the antenna terminals of your receiver.

**Connecting a color monitor**

To obtain a better-quality picture, connect a color monitor, such as the Sony Profeel Trinitron Component TV, instead of a conventional TV receiver.

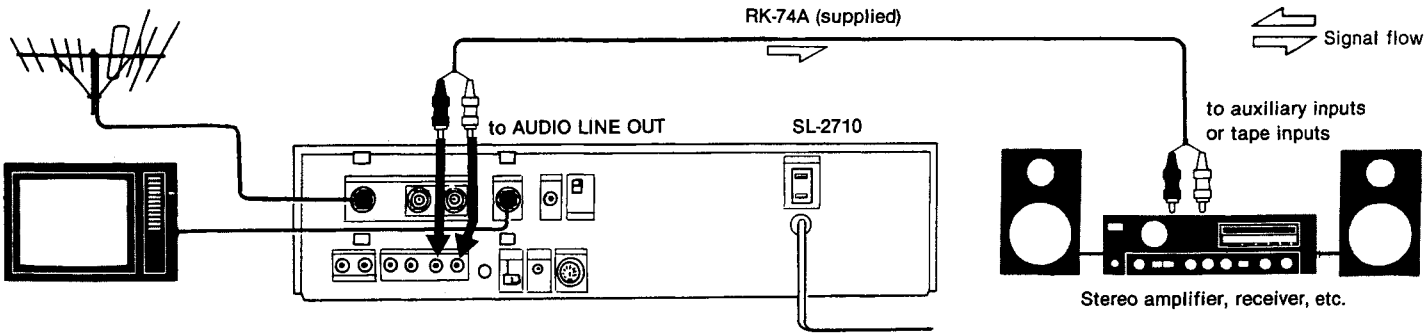
When a component TV is combined with the speaker system as illustrated, you can enjoy tapes recorded with Beta hi-fi stereo.

If you use a component TV tuner together with the monitor, connect the recorder and the TV tuner in the same way as in the case of the recorder and the conventional TV receiver described on the previous page. For details on the connection of the TV tuner and the monitor, refer to the instruction manual of the TV tuner.



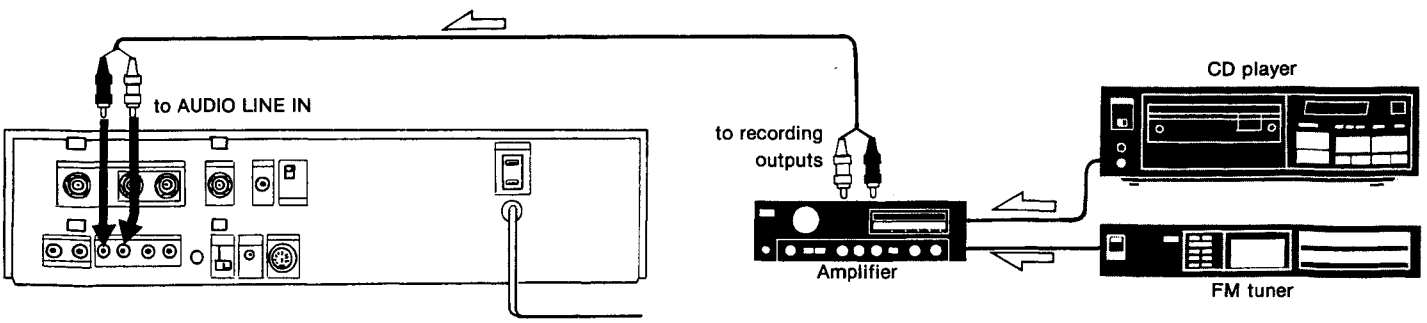

## CONNECTION TO AN AUDIO SYSTEM

You can enjoy tapes recorded with Beta hi-fi stereo when the recorder is connected to your audio system.

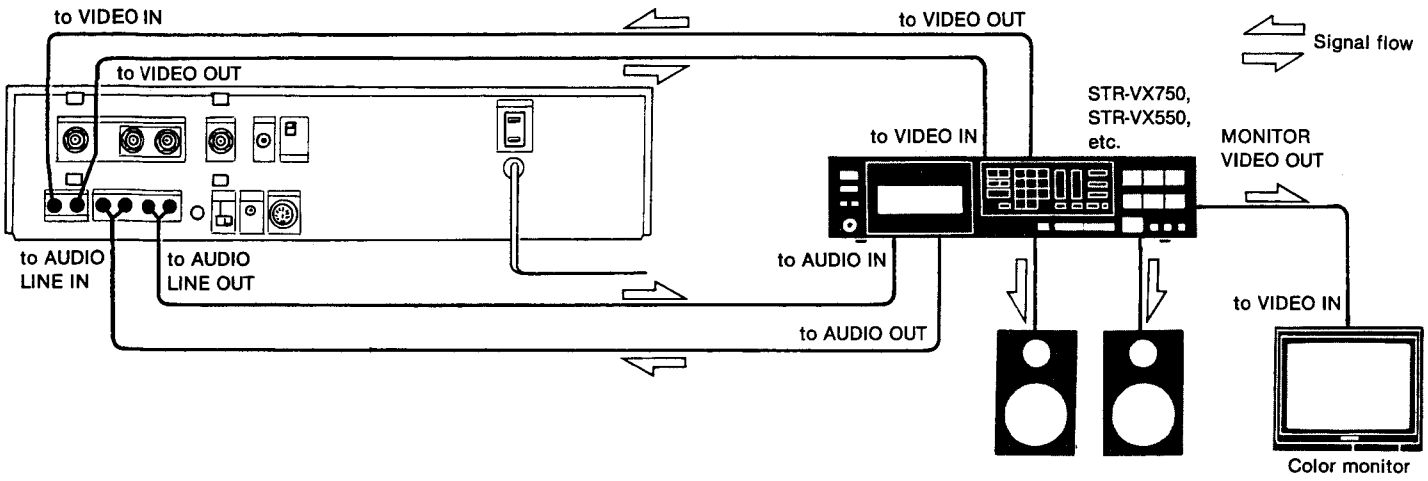



**To record audio signals from your audio system**

You can record audio source such as an FM tuner, CD player, with the Beta hi-fi system without recording video signals.



**Connection to the receiver equipped with the VIDEO connectors (available in the U.S.A. and Canada)**

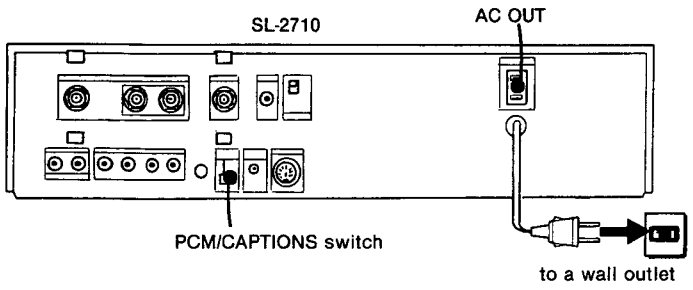



For details, see the instruction manual of the receiver.

**Notes**

- If the VCR is installed near a tuner or a radio, noise may be heard in AM reception. In this case, keep the VCR away from the tuner or the radio, adjust the AM bar antenna for minimum noise, or connect an external AM antenna to the tuner.
- Before connecting or disconnecting the power cord of the VCR, be sure to turn the connected amplifier off.

## POWER CONNECTION




**CAUTION :**
TO PREVENT ELECTRIC SHOCK, DO NOT USE THE POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

**AC OUTLET**

This socket provides a convenient ac power source for other video or audio equipment whose power consumption is under 400 watts. Power will be supplied to the connected equipment even if the recorder is turned off.

**Caution**

Do not connect here any electrical home appliances whose power consumption exceeds 400 watts, such as an electric iron or fan.

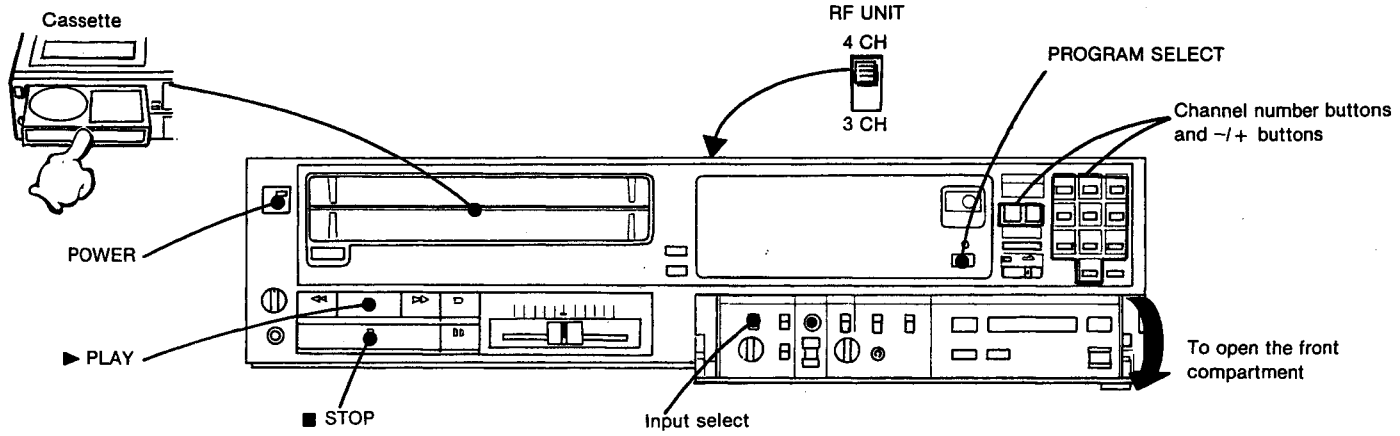
**For customers who want to record or play back captioned programs**

Remove the cover of the PCM/CAPTIONS switch at the rear and set the switch to the left position.
If the switch remains in the right position, closed captions will not be recorded or played back.

# ADJUSTMENT

## ADJUSTING THE TV

Your TV receiver must be adjusted to receive the signal from your recorder. If you connect a color monitor, it does not need adjusting.




**If you do not have a recorded video cassette tape**

❶ Set the RF UNIT channel selector located at the rear of the recorder to 3 CH or 4 CH whichever channel is not active in your area.
❷ Push in the POWER switch. The lamp lights.

❸ Press the PROGRAM SELECT button to turn the VTR lamp on.
❹ Check that the input select switch is set to TUNER, then select an active channel in your area with a channel number button or −/+ button on the recorder.

❺ Turn on the TV.
❻ Set the TV receiver to either VHF channel 3 or 4 to agree with the setting of the RF UNIT channel selector.
The TV program selected on the recorder or the tape program will be displayed on the TV screen. If a picture does not appear on the TV screen or if the display is not clear, fine-tune the channel on the TV.
●For details about TV channel adjustment, see the instruction manual of the TV receiver.

**Check!**
Check that the program displayed on the screen changes when a different channel is selected on the recorder. If the program does not change, repeat the preceding steps.

**If you have a recorded video cassette tape**

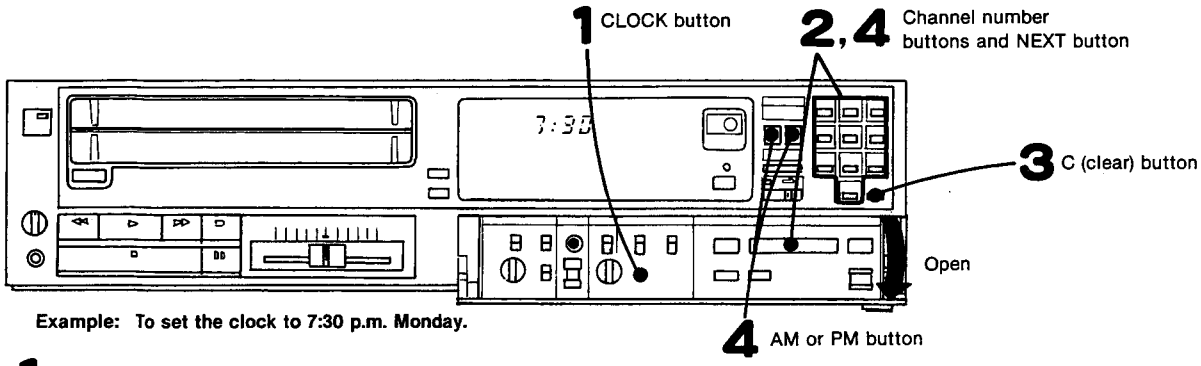
❸ Insert the cassette with the round window to the left.
❹ Press the ► button.

**Check!**
Check that the display on the screen changes when you stop the tape by pressing the ■ button on the recorder. (To eject the cassette, press the ⏏ button.)
If the program does not change, repeat the preceding steps.

Now your TV receiver is tuned to the recorder. Whenever you use the video recorder, you should set the TV to the channel which you have chosen above.

# SETTING THE CLOCK

The clock can be set with the power cord plugged in, even when the power is not turned on.

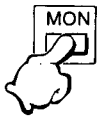



**Example: To set the clock to 7:30 p.m. Monday.**

**1** Press CLOCK.

Press the corresponding buttons to adjust the blinking indication and press NEXT.

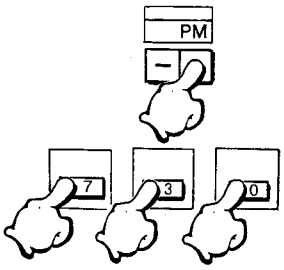
**2** ❶ Set the day of the week.



❷ Press NEXT.

**3** Press C (clear).

**4** ❶ Select AM or PM, and set the time.



AM 12:00...midnight
PM 12:00...noon

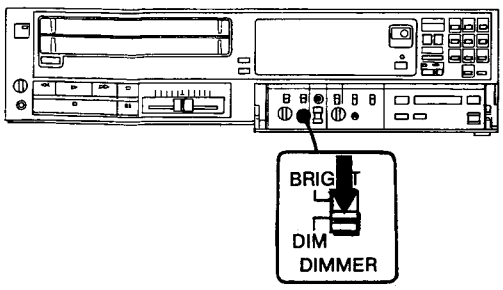
❷ Press NEXT.

The clock now starts operating, showing the correct time.

The upper dot blinks during the first half and the lower during the second half of each minute.

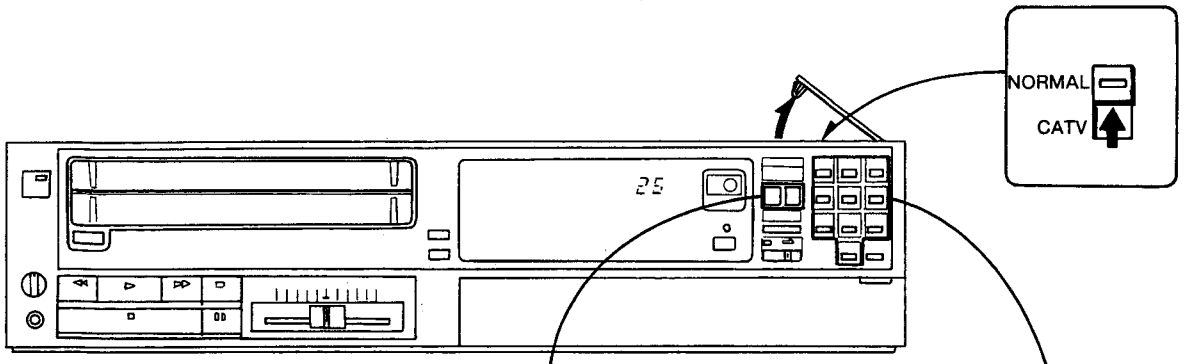
**Brightness of the time display**

To reduce the brightness of the time display, set the DIMMER switch to DIM.

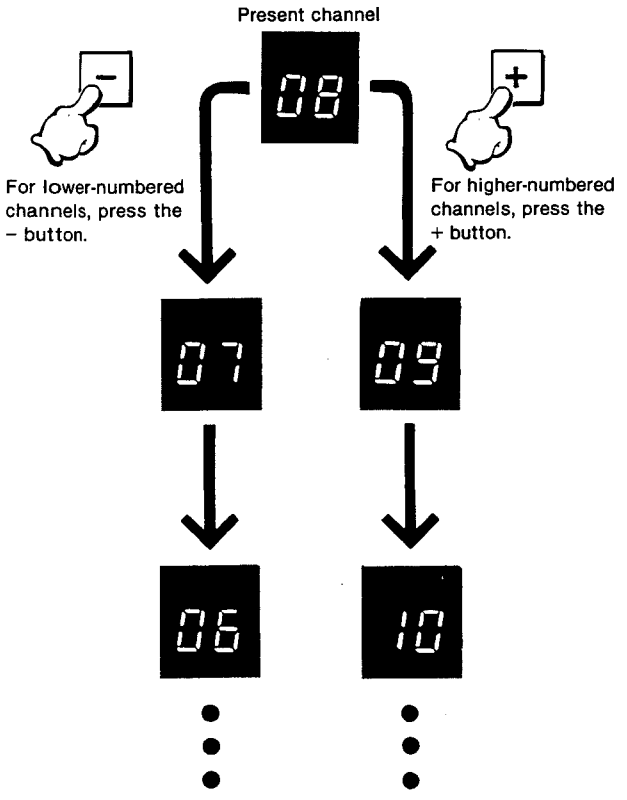


# HOW TO SELECT TV CHANNELS

You can select the desired channel by pressing the appropriate channel number buttons, or by scanning higher or lower among the prememorized channels with the CHANNEL −/+ buttons.
This recorder is preset at the factory to receive VHF channels 2 through 13 with the −/+ buttons. To add UHF channels or CATV channels, or to erase inactive channels see page 13.




**Using the −/+ buttons**

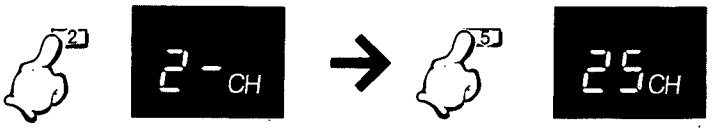



**Using the channel number buttons**

For channels 1 through 9, press the 0 button first.

ex. 1: To select VHF channel 7

ex. 2: To select UHF channel 25

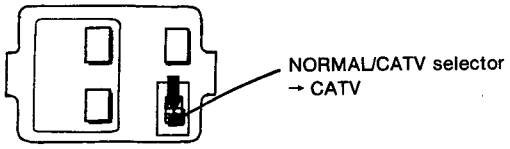


If you select an incorrect tens-digit, or forget to first press 0 for channels 1 through 9, wait about two seconds so that the previous number display is recalled, or press the C button.

### TO SELECT CATV CHANNELS

In addition to normal broadcast reception of VHF channels 2 - 13 and UHF channels 14 - 83, this recorder receives CATV channels. To get the desired CATV channel, set the NORMAL/CATV selector to CATV, refer to the following chart and select the corresponding number on this recorder.

In the tuning compartment




| Number on this recorder | | | | | | | |
|---|---|---|---|---|---|---|---|
| Corresponding CATV channel | A-8 | A-7 | A-6 | A-5 | A-4 | A-3 | A-2 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A-1 | A | B | C | D | E | F | G | H | I | J | K | L |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | N | O | P | Q | R | S | T | U | V | W | W+1 | W+2 |
| | | | | | | | | | | | AA | BB |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W+3 | W+4 | W+5 | W+6 | W+7 | W+8 | W+9 | W+10 | W+11 | W+12 | W+13 | W+14 | W+15 |
| CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W+16 | W+17 | W+18 | W+19 | W+20 | W+21 | W+22 | W+23 | W+24 | W+25 | W+26 | W+27 | W+28 |
| PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W+29 | W+30 | W+31 | W+32 | W+33 | W+34 | W+35 | W+36 | W+37 | W+38 | W+39 | W+40 | W+41 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W+42 | W+43 | W+44 | W+45 | W+46 | W+47 | W+48 | W+49 | W+50 | W+51 | W+52 | W+53 | W+54 |

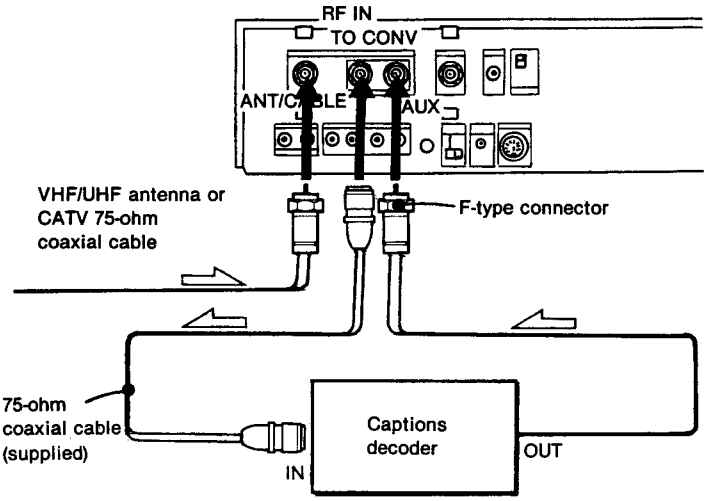
| | | | |
|---|---|---|---|
| W+55 | W+56 | W+57 | W+58 |

Most CATV systems use letters to designate channels but some use numbers. To tune in a numbered channel, select the same number on the recorder.
Not all CATV channels listed will be active on your particular system. Check with your local cable TV company or your nearest Sony dealer for more complete information on the available channels and the type of cable system.

## PROGRAMMABLE ANTENNA SWITCH

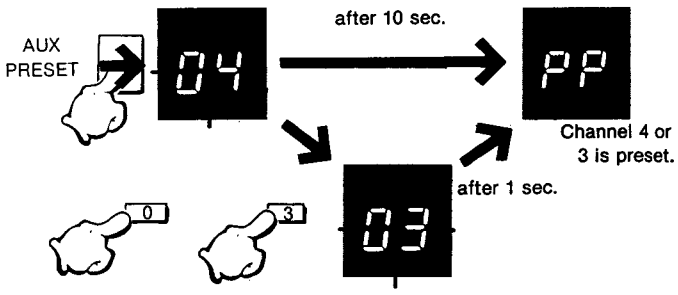
You can preset this video cassette recorder to switch from direct reception from the RF IN ANT/CABLE terminal to reception looped through an optional captions decoder by using the AUX button on the front control panel or on your Remote Commander.

### CONNECTING A CAPTIONS DECODER FOR RECORDING CAPTIONED PROGRAMS

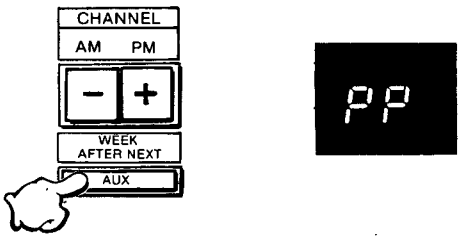



### TO PRESET THE OUTPUT CHANNEL OF THE CAPTIONS DECODER

To receive captioned programs from the decoder connected to the RF IN AUX terminal, select the output channel number of the decoder, channel 3 or channel 4.
Press the AUX PRESET button.
Channel number "04" will blink in the display.
If the output channel of the decoder is channel 3, press the channel number button 0 and 3 so that "03" blinks in the display. If the output channel of the decoder is other than channels 3 or 4, follow the procedure above and select the appropriate channel.



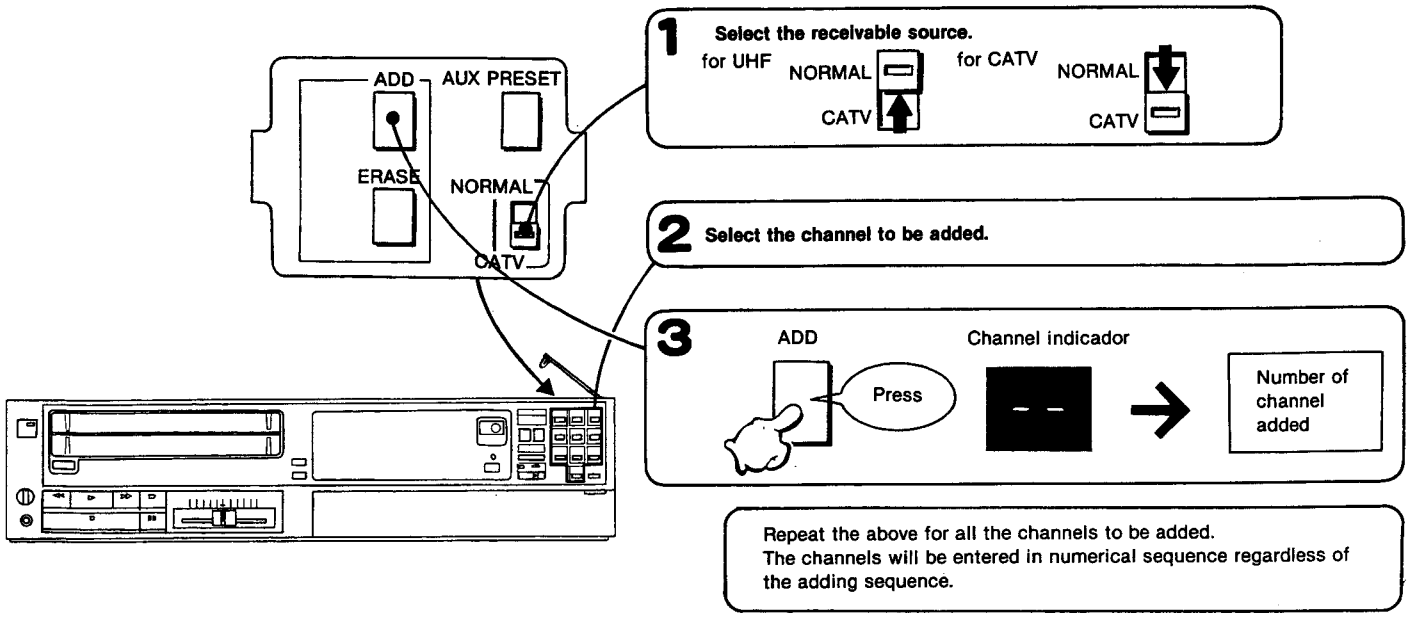

Once you preset, you can receive a captioned program from the AUX terminal by simply pressing the AUX button, whether the NORMAL/CATV select switch is set to NORMAL or CATV.
The channel display will show "PP" (preset program).



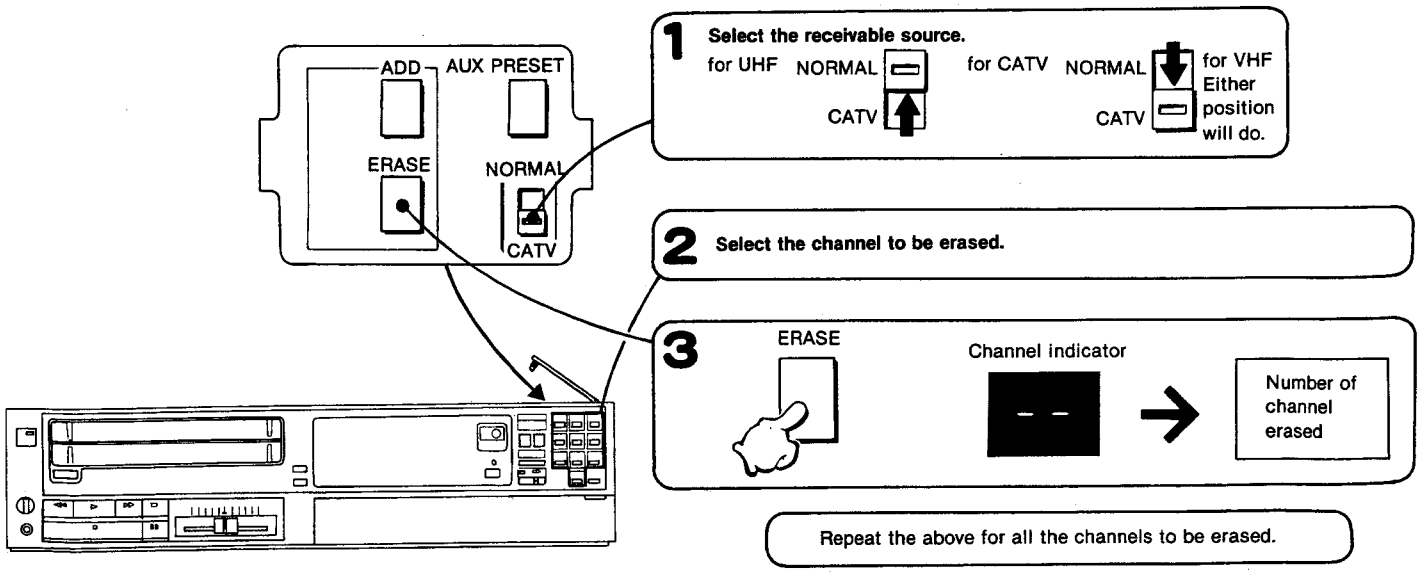

To receive a captioned program on the TV even when the recorder is turned off, press the AUX button so that the "PP" will appear in the display window.

## CHANNEL PRESETTING—How to preset channels to be scanned with the −/+ buttons on the recorder or the Remote Commander

### TO ADD UHF OR CATV CHANNELS




### TO ERASE INACTIVE CHANNELS

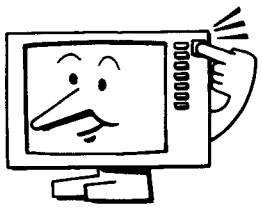



**Operating note:** It is not possible to erase UHF channel from the memory and retain the CATV channel of the same number in the memory, or vice versa.
If either the UHF channel or the CATV channel of the same number is to be kept in the memory, do not erase the number.

# BASIC OPERATIONS

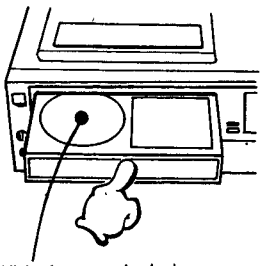
## HOW TO RECORD TV PROGRAMS

**1** Turn on the TV and select the channel for the video recorder.



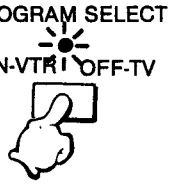
**2** Turn on the recorder.

**3** Insert a cassette.

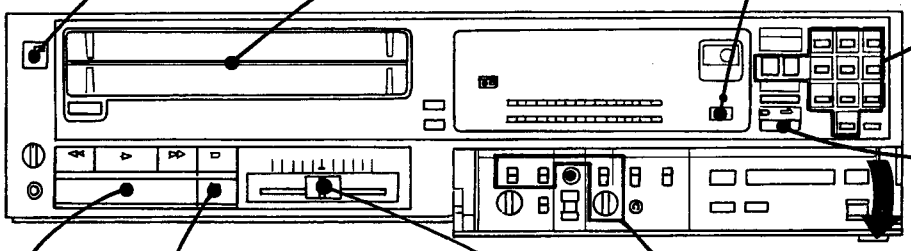


With the round window to the left

**4** Select the VTR mode.

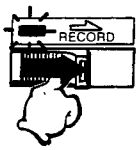



**5** Select the channel to be recorded with the channel number buttons or the –/+ buttons.



Open

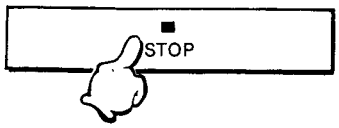
**6** Slide to the right.




Recording starts.

To stop the tape momentarily.
The TV program can be seen on the TV, but the picture will not be recorded.
To resume recording, press the button again.

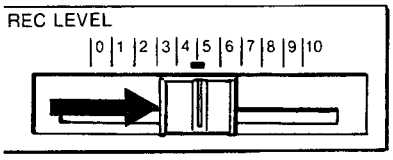
To stop recording




To eject the cassette, press the ⏏ button.

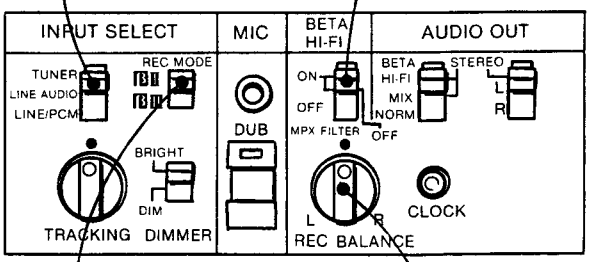
**Check before recording;**

REC LEVEL control
⇨ 5*




Input select switch
⇨ TUNER*

BETA HI-FI switch
⇨ ON*




* Green position is the standard setting position.

REC MODE selector
⇨ proper position

REC BALANCE control
⇨ center

**Once the recording has started, you cannot change the channel as the selected channel has been locked.**

**Automatic pause release**
To protect the video heads and the tape, the pause mode will be automatically released after about 8 minutes and recording will resume.

**Automatic rewind function**
If the tape reaches the end during recording, the tape will be rewound to the beginning automatically.

**In case you want to record a tape which is to be played back on another recorder from the very beginning of the tape,** run the tape for about 15 seconds before starting recording. Otherwise you may miss the starting point during playback on the other machine.

**RECORDING ONE TV PROGRAM WHILE VIEWING ANOTHER**

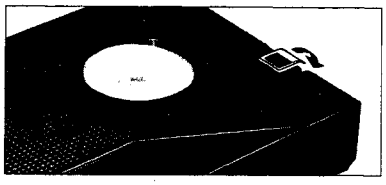
You can record a TV program selected on the recorder while viewing another TV program.
1 Start recording the desired TV program following the procedure above.
2 Press the PROGRAM SELECT button so that the VTR lamp goes off.
3 Select the channel you want to view on the TV.

## Cassette safety tab

**TO KEEP A RECORDED PROGRAM FROM BEING ACCIDENTALLY ERASED**
When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased.

**To avoid erasing a recording**
Break off the safety tab using a screwdriver or similar object.

**To re-record on a cassette which has had its safety tab removed**
Cover the hole with a piece of plastic tape.



## REC MODE selector

Select the proper position according to the length of the program to be recorded.

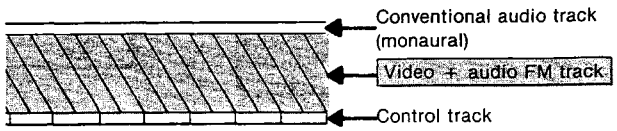
**Recording time available in each mode**

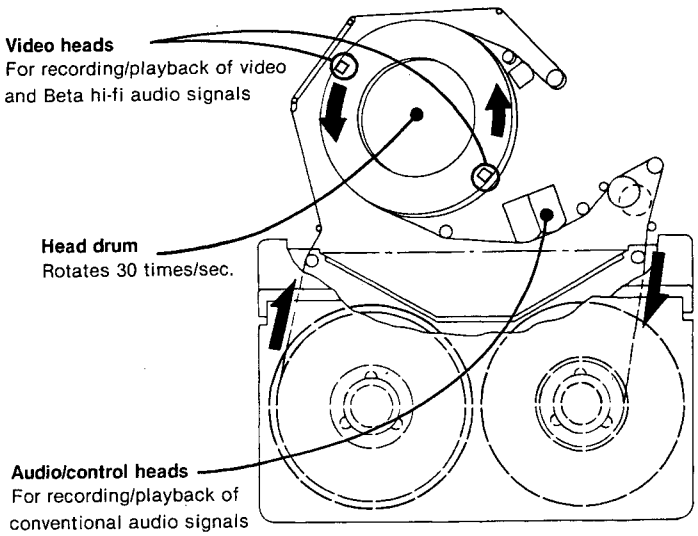
| Cassette used | ßII mode | ßIII mode |
|---|---|---|
| L-125 | 30 min. | 45 min. |
| L-250 | 1 hr. | 1 hr. 30 min. |
| L-500 | 2 hr. | 3 hr. |
| L-750 | 3 hr. | 4 hr. 30 min. |
| L-830 | 3 hr. 20 min. | 5 hr. |

## BETA HI-FI swtich

**What is BETA HI-FI recording?**
In conventional recording, audio signals are recorded on the audio track and the video signals on the video track. On Beta hi-fi recording, audio signals are recorded on the video track together with the video signals using the 2 rotary video heads.
The Beta hi-fi audio signals are frequency-modulated and recorded in 2 channels, so that you can record a stereo or bilingual program with superior sound quality to that of the conventional audio recording.

Beta hi-fi recording pattern on the video tape

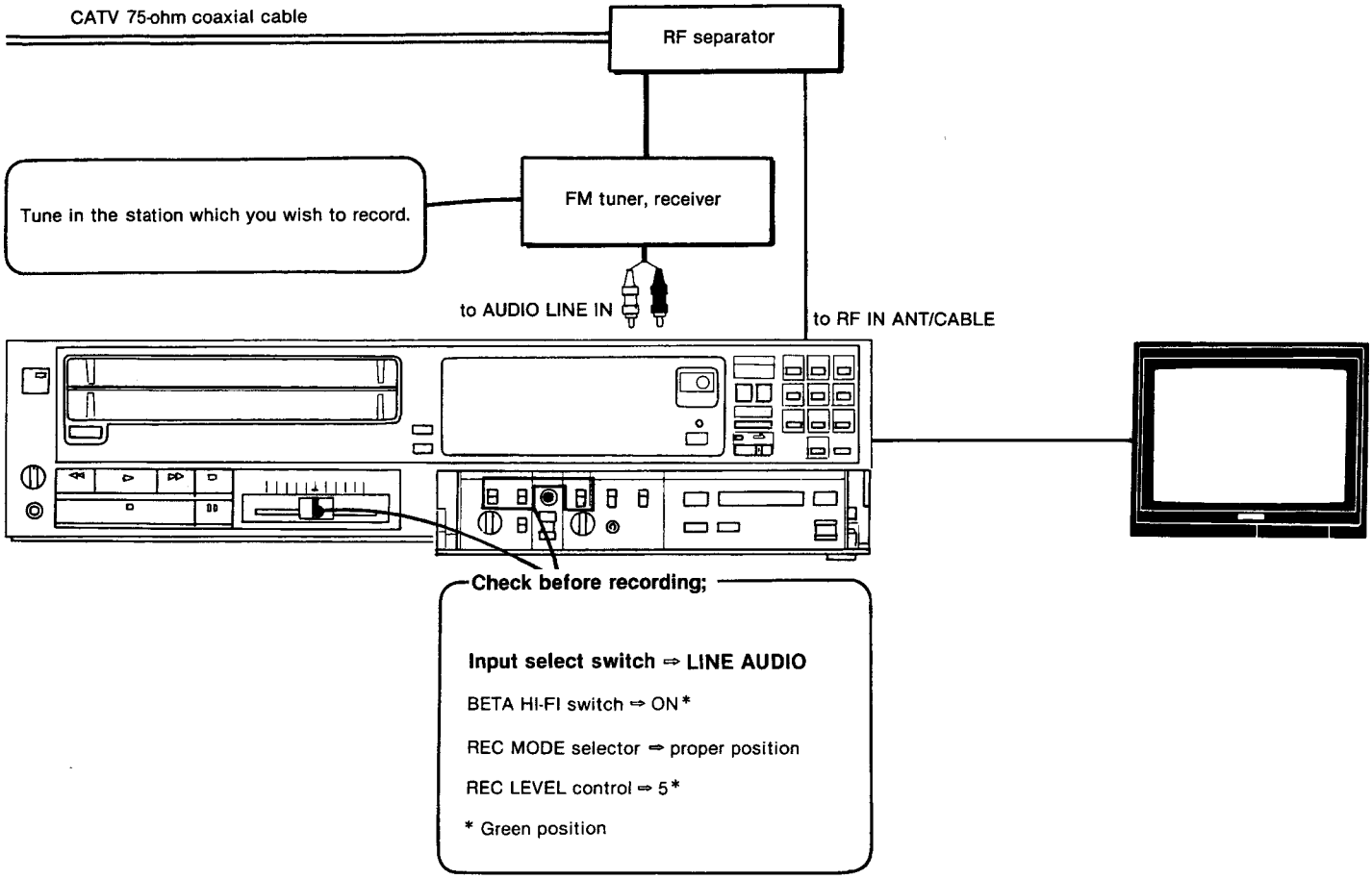




Video heads
For recording/playback of video and Beta hi-fi audio signals
Head drum
Rotates 30 times/sec.
Audio/control heads
For recording/playback of conventional audio signals and control signals.

**How the SL-2710 works**
At all times, the audio signal is recorded longitudinally on the conventional audio track in monaural, so that the tapes can be played back on any ordinary video cassette recorder without a Beta hi-fi system.
When the BETA HI-FI switch is ON, this recorder records audio signals on video track (Beta hi-fi recording) and on the conventional audio track at the same time.
For playback, see "SELECTION OF PLAYBACK SOUND" on page 19.

# FM SIMULCAST RECORDING

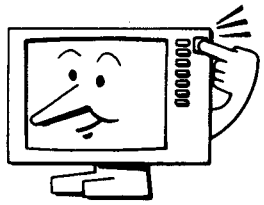
By connecting an FM stereo tuner to the AUDIO LINE IN jacks besides the CATV cable connection, you can record a CATV program with stereo sound, such as MTV (music TV), whose audio signals are divided into the FM tuner from the cable.


CATV 75-ohm coaxial cable
RF separator
Tune in the station which you wish to record.
FM tuner, receiver
to AUDIO LINE IN
to RF IN ANT/CABLE
Check before recording;
Input select switch ⇨ LINE AUDIO
BETA HI-FI switch ⇨ ON*
REC MODE selector ⇨ proper position
REC LEVEL control ⇨ 5*
* Green position

**Note**
**Be sure to return the input select switch to the TUNER position after recording FM simulcast TV programs. Sound cannot be recorded when recording normal TV or CATV programs if the switch is at the LINE AUDIO position.**

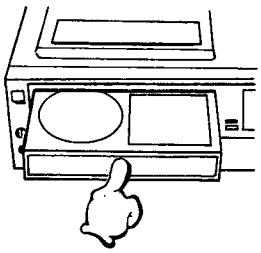
# HOW TO PLAY BACK A TAPE

**1** Turn on the TV and select the channel for the video recorder.



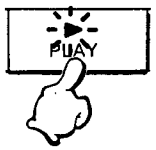
**2** Turn on the recorder.

**3** Insert a cassette.

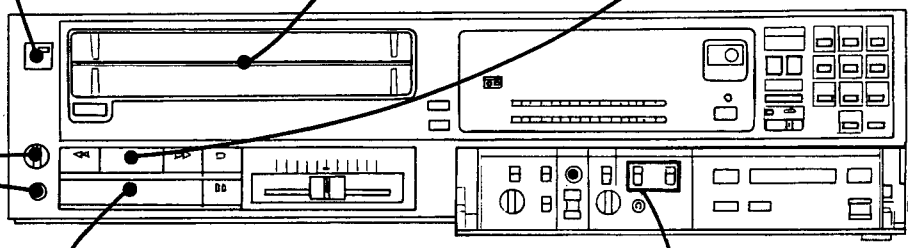


With the round window to the left

**4** Press the ▶ PLAY button.

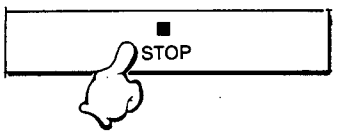



Playback will begin.



**To monitor with the headphones**
Connect headphones here. Volume is adjustable with the LEVEL control.

**To stop playing**

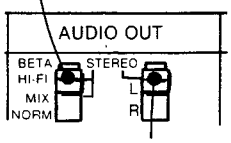



The program selected by the input select switch will appear on the TV screen.
If the tape reaches the end during playback, the tape will be rewound to the beginning automatically.

**Check before playback;**

Usually set to the green position.

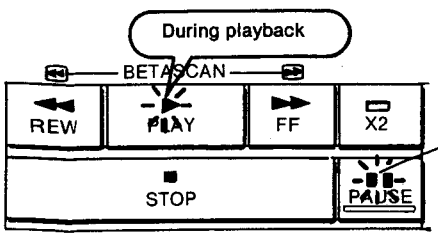
Audio track select switch ⇨ BETA HI-FI



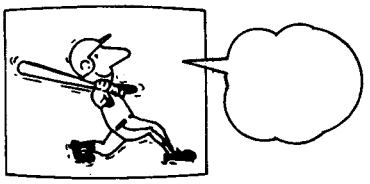

Beta hi-fi select switch ⇨ STEREO

For detailed information about each position of the switches and its playback sound, see "SELECTION OF PLAYBACK SOUND" on page 19.

**To get a freeze picture**
Press the ❚❚ PAUSE button during normal playback or x2 playback.




The lamp should light up.



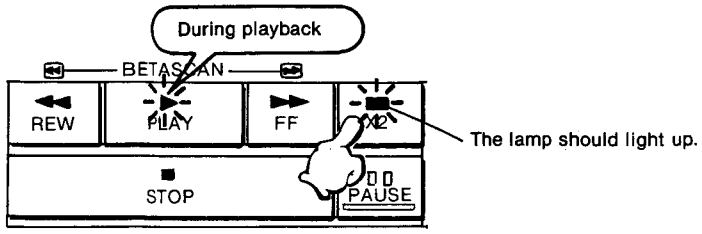
Sound cannot be heard in the freeze picture.

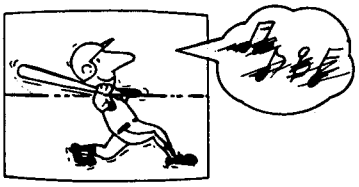
**Automatic pause release**
To protect the video heads and the tape, the pause mode will be automatically released after about 8 minutes and recording will resume.

**x2 PLAYBACK... To view double-speed picture with double-speed sound**

You can obtain double-speed sound only when the playback tape is Beta hi-fi recorded.

Make sure that a playback picture appears on the screen before pressing the x2 button.



A noise band will appear in the ×2 picture.

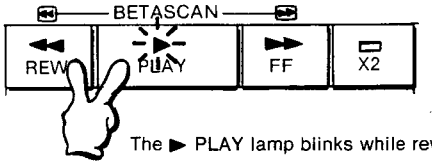
Noise will be heard in the ×2 sound.

Turn the TRACKING control so that the noise band and the sound noise may be reduced.

To resume normal playback, press the ×2 or ▶ button.

**AUTO PLAY... To play from the beginning of the tape after rewinding**

Press the ▶ PLAY button while holding the ◀◀ REW button depressed. After the tape is completely rewound, it will automatically be played back.



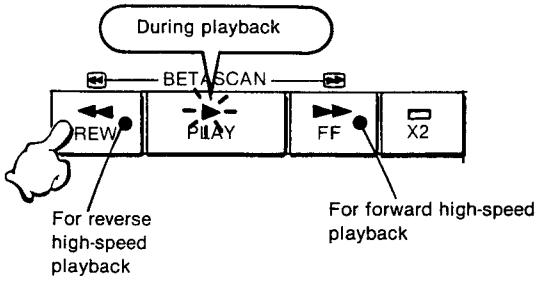

**WHEN YOU PLAY BACK A TAPE RECORDED ON ANOTHER VCR**

- If the VCR on which the tape was recorded is not equipped with the Beta hi-fi system, the recorder will play back the tape in the conventional way.
- If streaks or snow appear, open the front compartment and adjust the TRACKING control for the best possible picture.

Return the control to the center position after viewing that tape.

**BETASCAN... Viewing the picture at a fast speed to find a particular scene**

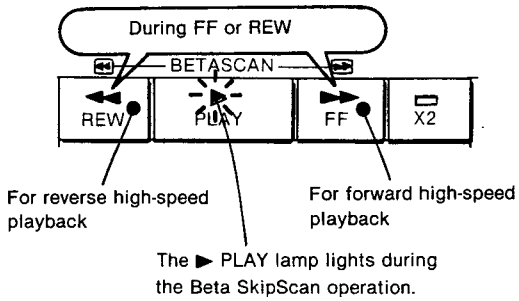
Press the ▶▶ FF or ◀◀ REW button during normal playback or x2 playback.



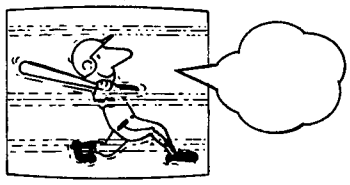

When you release the button, the normal playback or x2 playback will resume.

**BETA SKIPSCAN... Viewing the picture momentarily during fast-forward or rewind**

Press the ▶▶ FF or ◀◀ REW button during fast-forward or rewind mode.




When you release the button, the fast forward or rewind mode will resume.

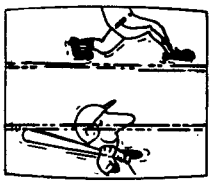


Streaks will appear in the Betascan picture, and more in the Beta SkipScan picture.

Sound cannot be heard during the Betascan or Beta SkipScan operation.

**Notes**

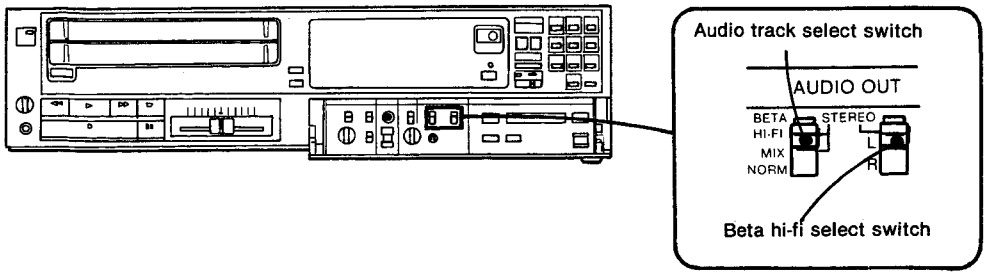
- If the picture rolls vertically, adjust the vertical hold control on the TV.



- During BETASCAN or x2 operation, the BETA HI-FI lamp may sometimes not light even when a Beta hi-fi recorded tape is played back.

# SELECTION OF PLAYBACK SOUND

When a Beta hi-fi recorded tape is being played back, you can select the playback sound with the audio track select switch and the Beta hi-fi select switch.




## AUDIO TRACK SELECT SWITCH

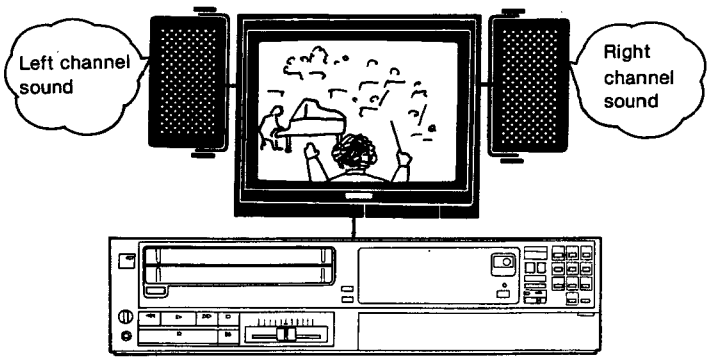
| Position | Playback sound |
|---|---|
| BETA HI-FI | Beta hi-fi recorded sound |
| MIX | Mixed sound of Beta hi-fi and conventionally recorded sound |
| NORM | Conventionally recorded sound |

When the tapes recorded on other video cassette recorder without a Beta hi-fi system are played back, the conventional audio track is automatically selected regardless of the switch position.

## BETA HI-FI SELECT SWITCH

Set to the proper position to get the desired sound, when the audio track select switch is set to BETA HI-FI or MIX.

**Playback of Beta hi-fi stereo sound programs**
Set to STEREO.




When the recorder is connected to a Component TV, a stereo system or stereo headphones, you can enjoy stereo sound reproduction.

When a conventional (monaural) TV is connected, the sound of the left and right channels are mixed so that monaural sound comes from the TV speaker.

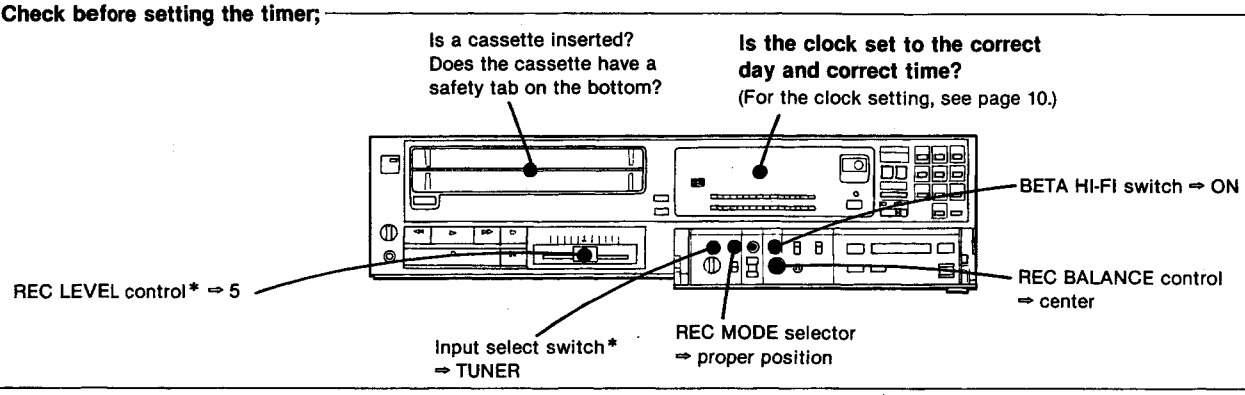
**Playback of Beta hi-fi bilingual programs**
Set to L or R.
Select the proper position to play back the language you wish to listen.
If you play back a bilingual tape with the switch at the STEREO position, both languages will be heard simultaneously.

Be sure to reset the switch to the green position (STEREO) after playing back Beta hi-fi bilingual programs.

# TIMER-ACTIVATED RECORDING

The built-in timer permits automatic recroding of up to nine pre-selected programs, even when you are not at home. The timer can be set to operate anytime until the 3rd or (if the day of presetting is Saturday) the 2nd Saturday from the day you preset the programs.

**Check before setting the timer;**


Is a cassette inserted?
Does the cassette have a safety tab on the bottom?
Is the clock set to the correct day and correct time?
(For the clock setting, see page 10.)
BETA HI-FI switch ⇨ ON
REC LEVEL control* ⇨ 5
REC BALANCE control ⇨ center
Input select switch* ⇨ TUNER
REC MODE selector ⇨ proper position

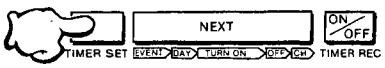
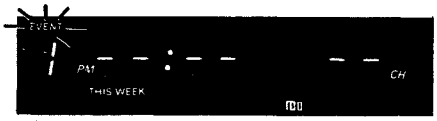
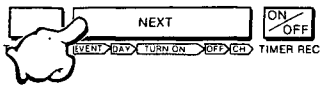
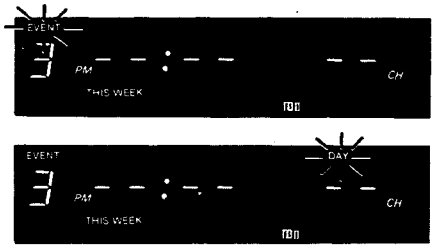
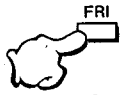
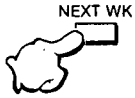
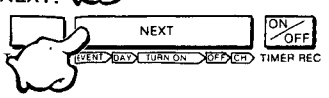
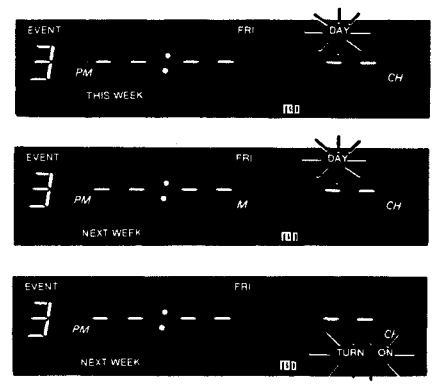
**Note**
The timer cannot be set during recording.

* When the sound source to be recorded is connected to the AUDIO LINE IN jacks, set the switch to LINE AUDIO and adjust the control.

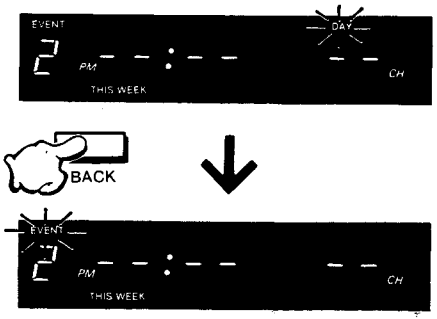
## SETTING THE TIMER

The turn-on day may be a particular day of the week or every day. You need not set the nine programs all at one time.

**Example:** Suppose you want to set the timer to record a channel 8 broadcast from 9:00 p.m. to 11:25 p.m. on Friday next week in EVENT 3.

| Button to be pressed | Time display<br>The segment to be set will blink. |
|---|---|
| **1**<br>  <br> |  <br>EVENT 1 will always be displayed first. |
| Press the corresponding buttons to adjust the blinking indication and press NEXT. | |
| **2** Select the event number.<br> <br><br>Press NEXT.<br>  <br> |  |
| **3** Select the turn-on day and week.<br>  <br><br> <br>NEXT WK<br>  <br>Press NEXT.<br>  <br> |  |

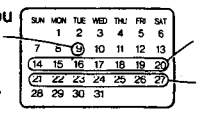
**To reset the previous steps**
Press the BACK button so that the previous step indication will blink.




**To record a program at the same time every-day**
Press the EVERY DAY button so that all days of the week indications will blink.

**If the day you want to record is in the next week or the week after next**
Press the NEXT WK or WEEK AFTER NEXT button so that the corresponding indication will blink.

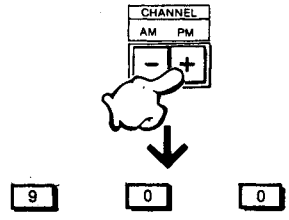
Suppose you are setting the timer on this day.



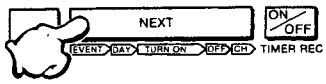

next week

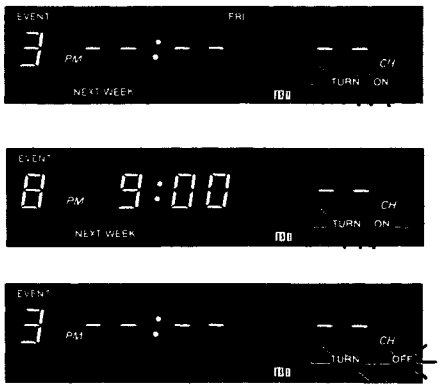
week after next

**4** Select AM or PM, and set the turn-on time.

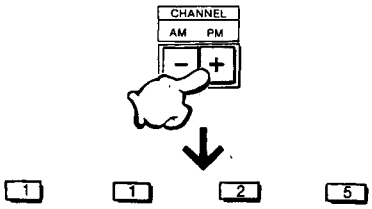



Press NEXT.

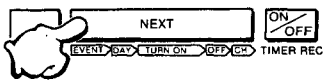


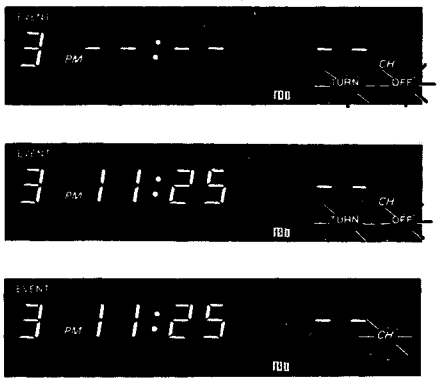




**5** Select AM or PM, and set the turn-off time.



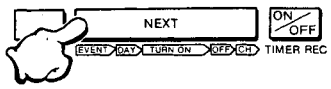

Press NEXT.

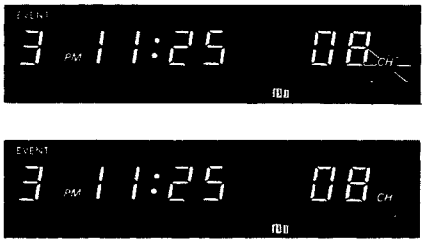



**6** Select the channel to be recorded.
To select channels 1 through 9 by using the channel number buttons, press the 0 button first.

Press NEXT.

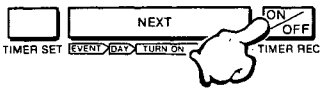



The content of EVENT 3 is automatically displayed after the NEXT button : then the time counter is displayed.

Now EVENT 3 is set. To set more events, repeat these steps.

**7** Set to the timer standby mode, after all the timer settings are finished.

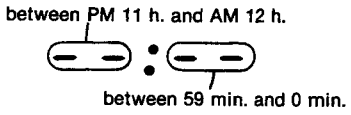



The TIMER REC lamp will light up unless an error was made.

The present time is displayed.

**If you select an incorrect digit for the turn-on/off time setting**
Press the C button so that the display will show "–:–", then press the corresponding buttons.

**To record to the end of the tape**
Set the turn-off time to a time after the tape will reach the end or to "–:–".




When the tape reaches the end during the timer recording, the recording stops and the until will be turned off automatically after about 30 seconds. In this case the tape will not be rewound to the beginning.

**To select the channel**
You can select the channel to be recorded not only with the channel number buttons, but also with the –/+ CHANNEL button.

ONCE THE TIMER REC LAMP HAS LIT UP, NO FUNCTION OF THE RECORDER CAN BE ACTIVATED, except for checking the timer setting. This is to safeguard the timer recording.

At the preset turn-on time, recording will start automatically and will stop at the preset turn-off time.

**To stop the tape during timer recording**
Press the TIMER REC button so that the TIMER REC lamp goes off.

**To operate the recorder after the timer has been set**
Press the TIMER REC button so that the TIMER REC lamp goes off.

**To reactivate the timer recording standby mode**
Be sure to press the TIMER REC button again.

**TO CHECK THE TIMER SETTING**

Press the TIMER CHECK button. Each time you press the button, the indication will change as follows :

turn-on day and time of EVENT 1 → turn-off time →
turn-on day and time of EVENT 2 → turn-off time →
turn-on day and time of EVENT 3 → turn-off time →
⋮
turn-on day and time of EVENT 9 → turn-off time →
present time *

The indicator of the channel preset for the recording will light up at the same time the turn-on time of each program is displayed, so that the channel can be checked. During timer recording, however, the channel for other timer programs cannot be checked.

* To obtain a present time during the checking procedure, turn the unit off.

**TO CLEAR THE TIMER SETTING**

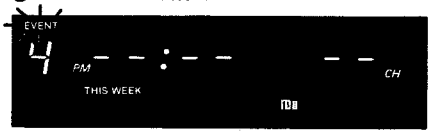
The memory of a timer program will be automatically erased when the recording of that program is finished. A setting for everyday will not be erased, of course.
If you want to skip the timer recording preset for everyday temporarily, press the TIMER REC button so that the TIMER REC lamp goes off. To resume the timer standby mode of that program, press the button again.

If you want to erase the memory of a timer program, proceed as follows :

❶ Press the TIMER SET button.

❷ Press the corresponding channel number button to select the desired EVENT number.

❸ Press the C button.




The entire memory of this program will be erased.

To display the present time, turn the unit off.

## IF THE "ERROR" INDICATOR BLINKS

**If the "PROGRAMS ERROR" indicator blinks while the timer is being set**

**If the "DAY" indicator also blinks when the "DAY" has been set**

No day was selected or the selected day was not included in the possible days for setting. In the above case, it is Tuesday today.

**If the "CH" indicator also blinks when the channel has been set**

No channel number or improper channel number was selected.

**To reset the timer**
Press the BACK button and correct the above point, then proceed with the remaining steps.

**If the "CASSETTE ERROR" indicator blinks and the TIMER REC indicator does not light when the TIMER REC button is pressed**

**Check the following points :**
- Did you insert a cassette into the recorder?
- Does the cassette inserted have a safety tab on the bottom?
- Make sure that the tape is not at its end.

**To reset the recorder into the timer standby mode**
Turn on the recorder and correct the above points, then press the TIMER REC button again.

**The "ERROR" indicator does not light in the following cases**
When the turn-on time has been set before the present time
...Such a timer program cannot be made.
When the settings for the programs overlap
...The preceding timer program will be stopped and the following program will start even when the preceding one has not finished.

**Please confirm that the turn-on time is not set before the present time whenever you set a timer program.**
**We recommend that you check the preset timer programs whenever you set a new timer program.**

## WHEN A POWER INTERRUPTION OCCURS

**If the clock shows "SUN AM 12 : 00" and does not advance**
All the timer settings have been erased. Reset the clock time and the timer settings.

**If the clock still shows the correct time**
The power has been interrupted for less than 60 minutes and the clock has been powered by the built-in self-charging battery so that the timer programs were kept in the memory. If the interruption occurs after the recording has begun, recording will be resumed when the power is restored.
- The built-in battery will be charged automatically when the ac power cord of the recorder is plugged into a wall outlet for at least 40 hours.

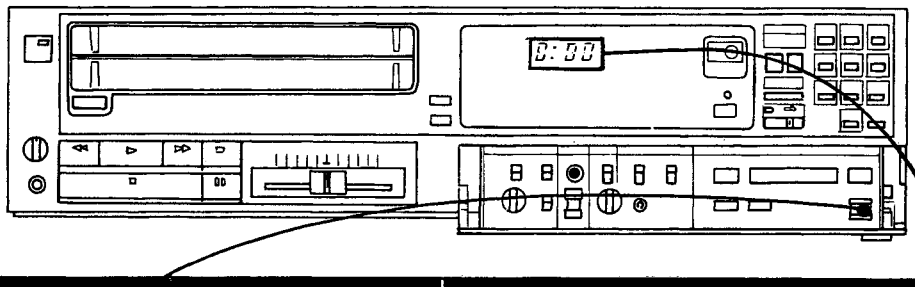
**Note**
If a power interruption occurs at the end of a timer program and restores in the middle of the next timer program, the recording of a former timer program may be continued to the end of the tape.

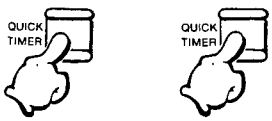
# QUICK TIMER RECORDING

When you have to leave the recorder for some reason and still wish to make a recording for a certain period of time, make use of this quick timer function.
With the quick timer function, recording can be started soon at any time and stopped automatically at the preset turn-off time.

## OPERATION

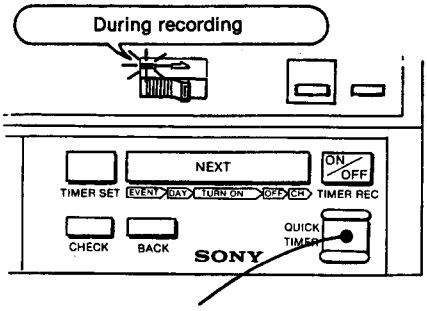
**How to select recording time**
Recording time can be selected in 30 minute intervals, from 30 minutes to 5 hours.



| Press the QUICK TIMER button as many times as required until the desired recording time is displayed. | The display window shows ; |
|---|---|
| once | After about 30 seconds, the recorder will be automatically turned off*. |
| twice  | Recording starts. |
| eleven times ↓ twelve times | Returns. |

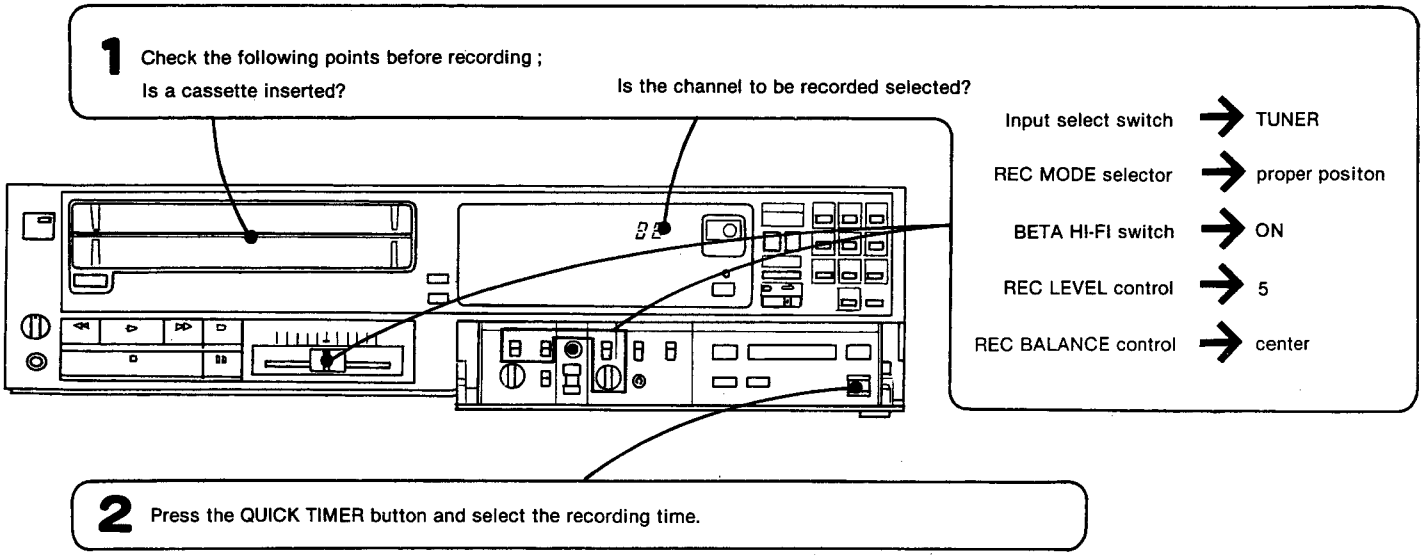
* When you press the ▶ PLAY, ▶▶ FF or ◀◀ REW button within this 30 seconds, the recorder is automatically set to the corresponding mode so that the quick timer function is cancelled, and the time counter is displayed.

**When the recorder is in the recording mode**



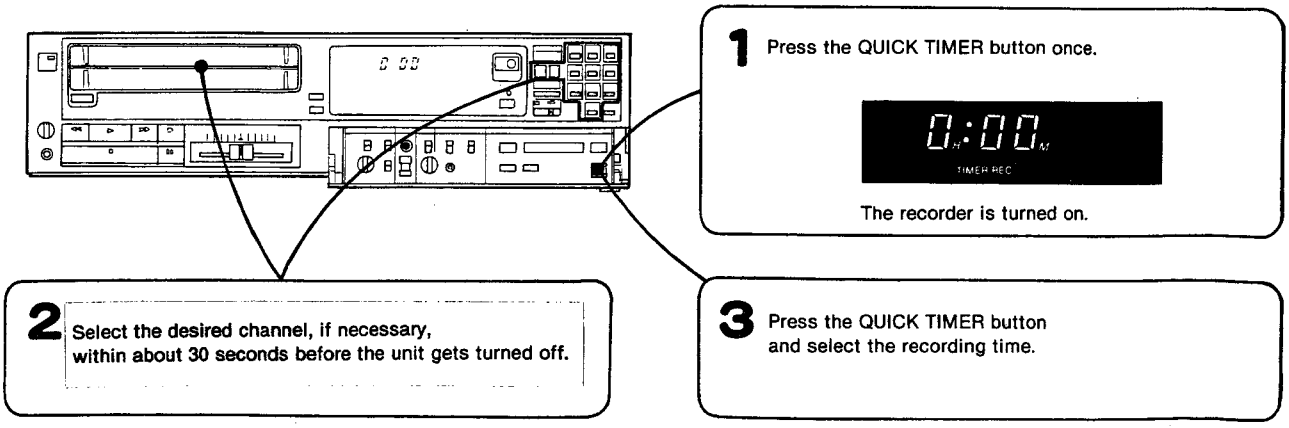

Press the QUICK TIMER button and select the recording time.

**When the recorder is turned on**


1 Check the following points before recording ;
Is a cassette inserted?
Is the channel to be recorded selected?
Input select switch → TUNER
REC MODE selector → proper positon
BETA HI-FI switch → ON
REC LEVEL control → 5
REC BALANCE control → center
2 Press the QUICK TIMER button and select the recording time.

**Turn off the TV before you leave.**

**When the recorder is turned off**
Check the points in step **1** above.


1 Press the QUICK TIMER button once.
0:00
TIMER REC
The recorder is turned on.
2 Select the desired channel, if necessary, within about 30 seconds before the unit gets turned off.
3 Press the QUICK TIMER button and select the recording time.

The recording starts and will automatically stop when the preset recording time has finished.

**During quick timer recording**
The display window shows the remaining recording time.

**To stop the quick timer recording**
Press the TIMER REC ON/OFF button.
The recording stops and the recorder will be turned off after about 30 seconds.

ONCE THE QUICK TIMER RECORDING HAS STARTED
No function button except for the following will activate :
QUICK TIMER button ... to change the recording time
CHECK button . . . to check the contents of the preset timer programs
TIMER REC ON/OFF button ... to stop recording
PAUSE button ... to stop the tape momentarily

**Notes**
**When the quick timer recording overlaps the preset timer program**
The quick timer recording is continued prior to the timer program.
The QUICK TIMER button does not function while the TIMER REC lamp is lit.

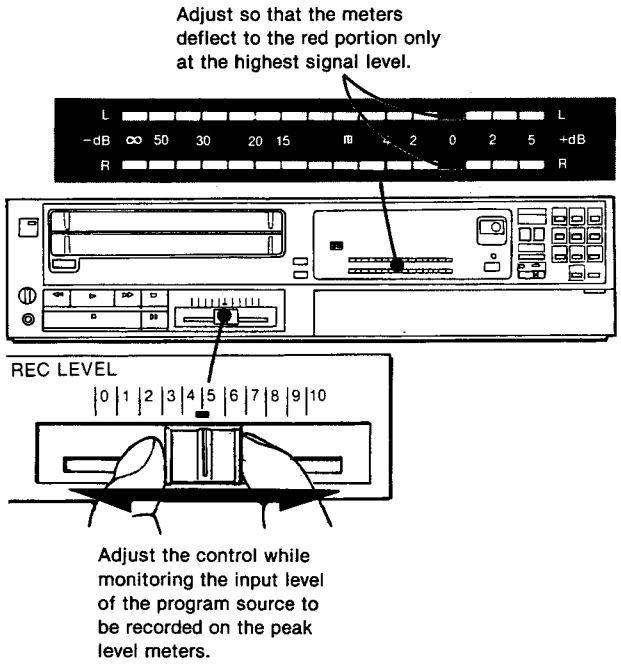
**When a power interruption occurs during quick timer recording**
The recording stops.
It will start again when the power is supplied within about 60 minutes.

**When the tape comes to an end before the preset turn-off time**
The recording stops and the recorder will be automatically turned off after about 30 seconds.

# ADVANCED OPERATION

## RECORDING LEVEL ADJUSTMENT

When recording on Beta hi-fi system, the recording level of two channels can be adjusted with the REC LEVEL control and the sound volume of each channel can be adjusted with the REC BALANCE control.
Usually, such as when you record TV program sound, proper recording level is obtained by setting the REC LEVEL control at 5 (green position).
When you record a sound source which contains low level to high level signals, for example, sounds from microphones or audio equipment, manually adjusting the recording level may result in a better recording.
If the recording level setting is too high, the sound will distorted, and if the setting is too low, a noisy recording will result. The recording level should be set as high as possible while avoiding distortion.

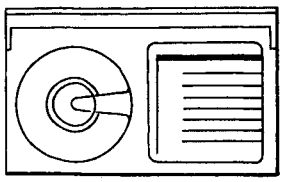

Adjust so that the meters deflect to the red portion only at the highest signal level.
L
-dB ∞ 50 30 20 15 2 0 2 5 +dB
R
REC LEVEL
0 1 2 3 4 5 6 7 8 9 10
Adjust the control while monitoring the input level of the program source to be recorded on the peak level meters.

Start recording after adjusting the record level.

# USING THE TIME COUNTER

### TO INDEX THE WHOLE TAPE

Before recording or playback, set the counter to "0H00M00S" by pressing the RESET button.
As the tape runs, the figures of the counter change. Note the numbers and the program being recorded or played back. Any point of the tape can thus be readily located later by referring to these numbers.



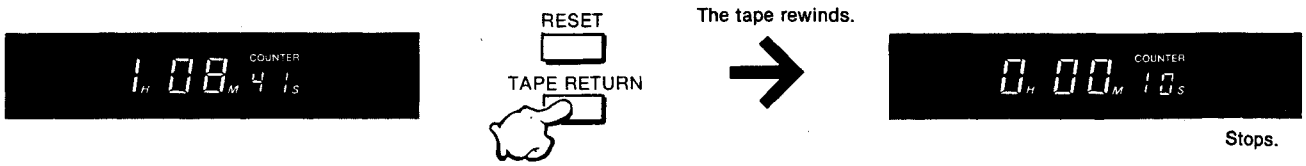
Write the counter readings you want to remember on the label of the cassette.

**The counter reading is automatically reset to zero,** when a cassette is ejected and inserted again.

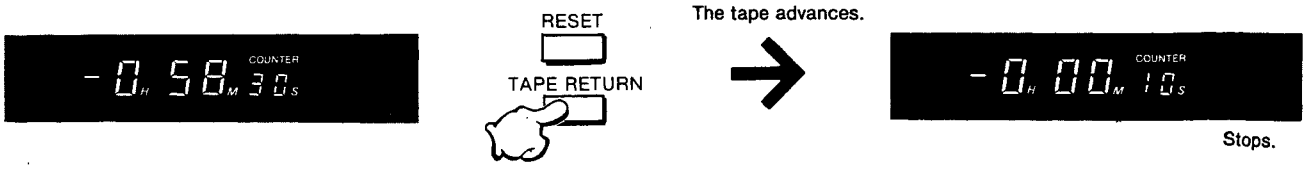
**The time counter does not operate with brand-new tapes.**
The time counter counts the CTL signals during playback or fast winding. These signals are recorded on the tape at the same time the signals are recorded on the video track.
Because new tapes have no CTL signals recorded on them, the time counter cannot operate with these tapes.
Because of the difference between the reference frequency of the time counter and the clock, the time counter indication is 3 to 4 seconds an hour behind the actual tape running time.
When fast winding the tape, the counter may count a number of seconds less than the actual time.

### TO RETURN TO A PRE-REGISTERED POINT—TAPE RETURN

During recording or playback, press the RESET button at the point you later want to locate.
When the recording or playback is finished, stop the tape by pressing the ■ STOP button, then press the TAPE RETURN button.
The tape will rewind or advance to the point where the RESET button was pressed.




When the counter reading has a minus sign

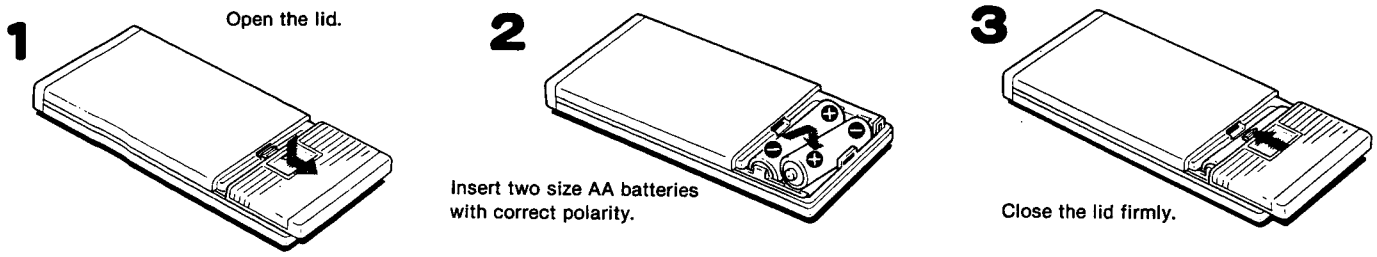



●The tape may stop a number of seconds before or after 0H00M00S.

# REMOTE CONTROL OPERATION

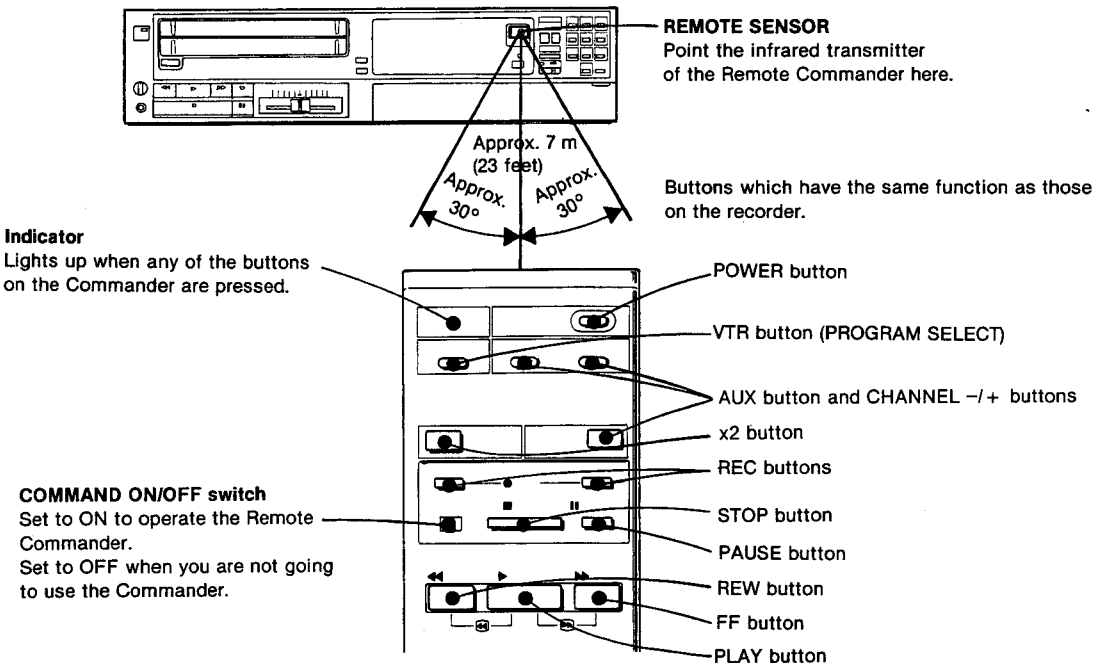
You can control almost all the functions of the SL-2710 video cassette recorder from your armchair using the supplied RMT-318 Remote Commander.

### BATTERRY INSERTION




**Battery life**
In normal operation, batteries will last for about six months. If the range of the Remote Commander becomes noticeably shorter, replace the batteries with new ones. When the batteries are exhausted, the indicator will not light when the buttons on the Commander are pressed.
**If the Remote Commander is not to be used for a long period of time,** remove the batteries to avoid possible damage from battery leakage.

### HOW TO USE THE REMOTE COMMANDER


REMOTE SENSOR
Point the infrared transmitter of the Remote Commander here.
Approx. 7 m (23 feet)
Approx. 30°
Approx. 30°
Buttons which have the same function as those on the recorder.
Indicator
Lights up when any of the buttons on the Commander are pressed.
POWER button
VTR button (PROGRAM SELECT)
AUX button and CHANNEL −/+ buttons
x2 button
REC buttons
STOP button
PAUSE button
REW button
FF button
PLAY button
COMMAND ON/OFF switch
Set to ON to operate the Remote Commander.
Set to OFF when you are not going to use the Commander.

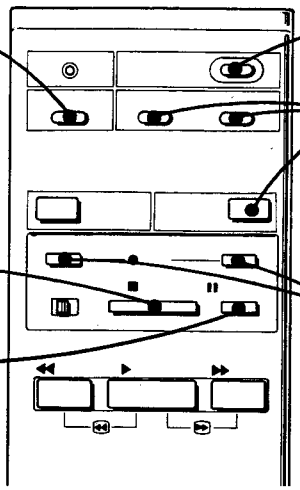
**Notes**
- There should be no obstacles between the Remote Commander and the REMOTE SENSOR of the recorder.
- The shorter the distance between the Remote Commander and the recorder, the wider the angle within which the recorder can be controlled.
- Avoid dropping foreign objects into the case, particularly when replacing batteries.
- Keep the Commander away from extremely hot or humid places.
- Avoid mechanical shock to the Commander.

## Recording

**VTR button**
Functions in the same way as the PROGRAM SELECT button on the recorder.
The VTR lamp will indicate the selected mode.

Press to stop recording.

Press to stop the tape momentarily.
To resume recording, press again.



**1** Press to turn the power of the recorder on. (Press again to turn it off.)

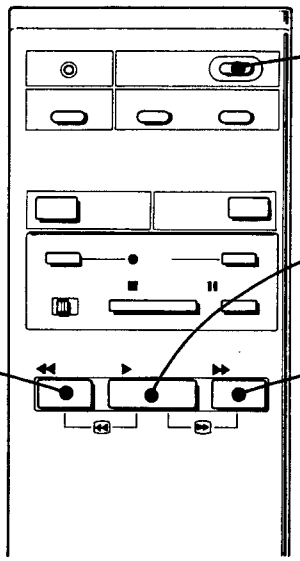
**2** Select the channel.
Press the + button for higher numbered channels and – button for lower numbered channels which are preset on the recorder.
To record the program from the AUX terminal, press the AUX button.

**3** Press these two buttons simultaneously.

●This recorder is preset at the factory to receive VHF channel 2 through 13 with the CHANNEL buttons on the Remote Commander. To add UHF channels or CATV channels, or to erase inactive channels, see page 13.

## Playback

**◀◀ REW button**
Press to rewind the tape.
Used also for Betascan or Beta SkipScan operation in the reverse direction.



**1** Press to turn the power of the recorder on. (To turn it off, press again.)

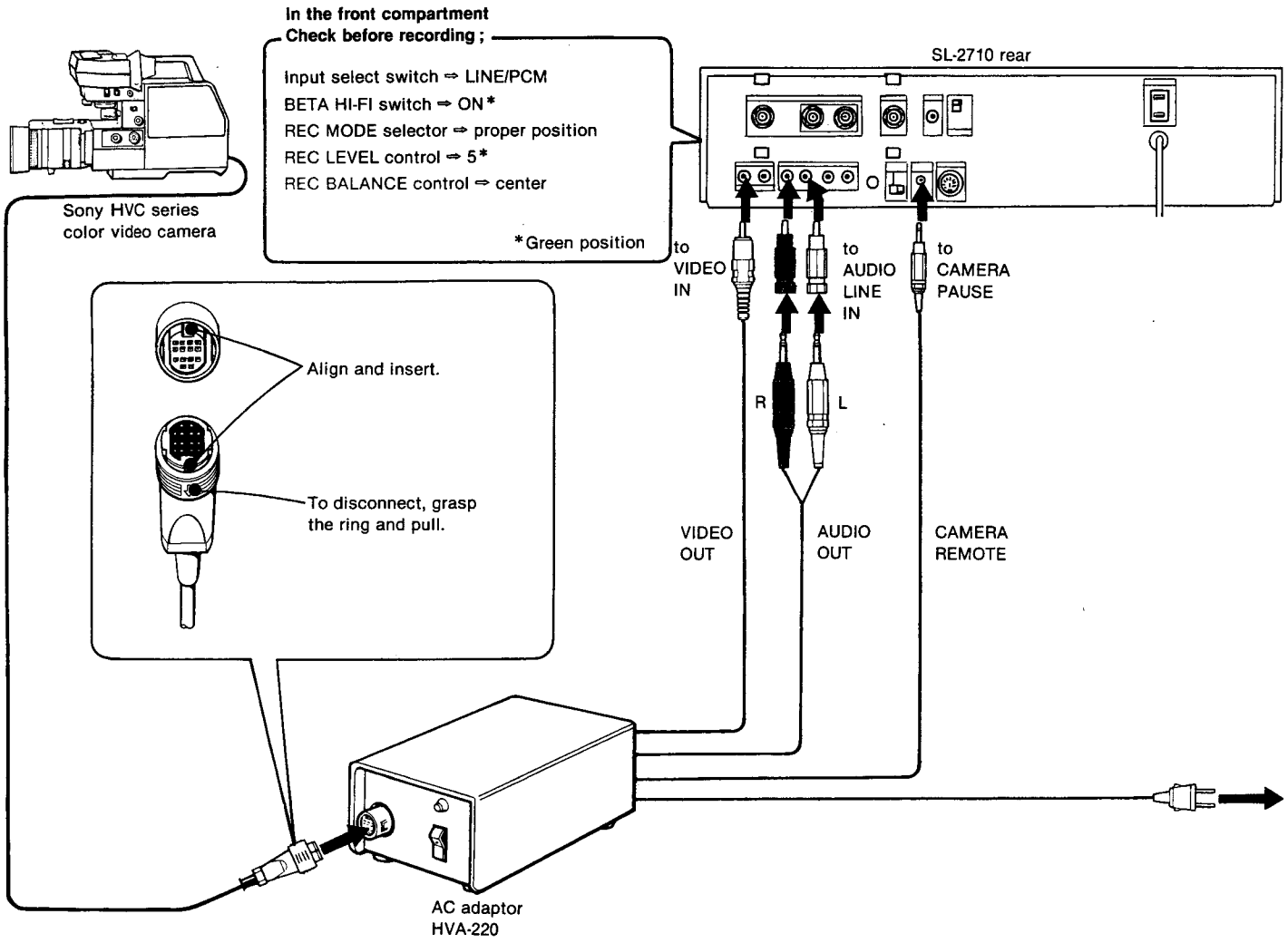
**2** Press.
The playback begins.

**▶▶ FF button**
Press to advance the tape rapidly.
Used also for Batascan or Beta SkipScan operation in the forward direction.

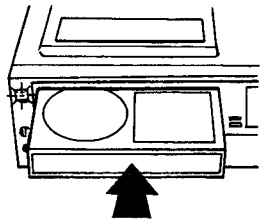
# CAMERA RECORDING... To produce your own programs

## CONNECTIONS

- The camera must conform to American TV (EIA) standards.
- The use of a Sony HVA-220 ac adaptor is required.

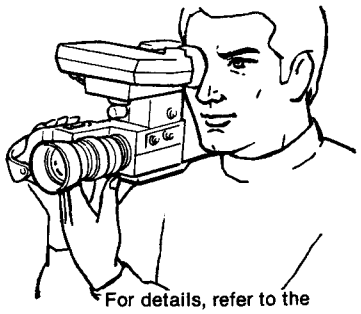


**1** Turn on the recorder and insert a cassette.

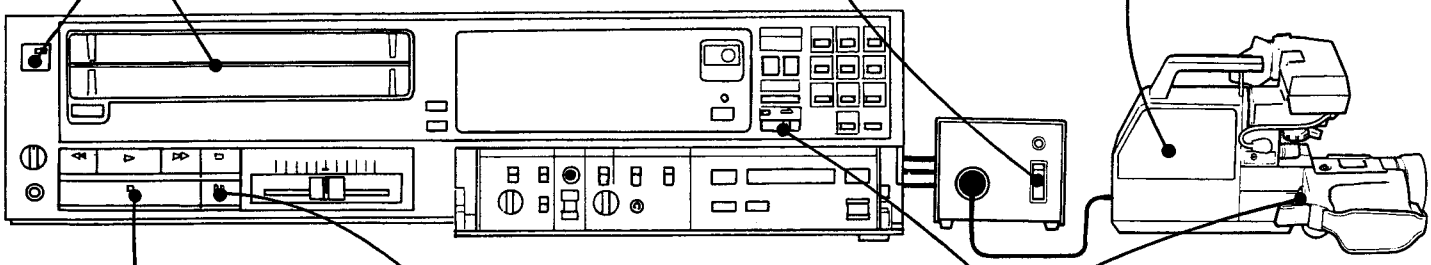


**2** Turn on the ac adaptor.

**3** Make the necessary adjustments on the camera.



For details, refer to the camera's instruction manual.

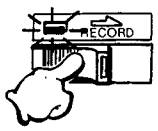


**To stop recording**
Press the ■ STOP button.

**To momentarily stop the recording**
Press the tape run/stop button on the camera or the PAUSE button on the recorder.
**To restart the recording,** press the same button again.

**Automatic pause release**
To protect the video heads and the tape, the pause mode will be automatically released after about 8 minutes.
The recorder will revert to the record mode.

**4** Slide to the right.

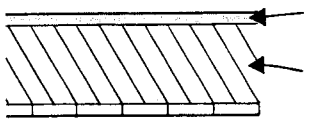



Recording will begin.

**TO MONITOR THE PICTURE BEING RECORDED WITH A CAMERA**
Turn on the TV, select the channel for the video recorder and press the PROGRAM SELECT button on the recorder to light up the VTR lamp.

# DUBBING AUDIO

You can record additional music or commentary on any recorded tape.
The new sound is recorded on the conventional audio track so the Beta hi-fi recording and the picture remain unchanged.



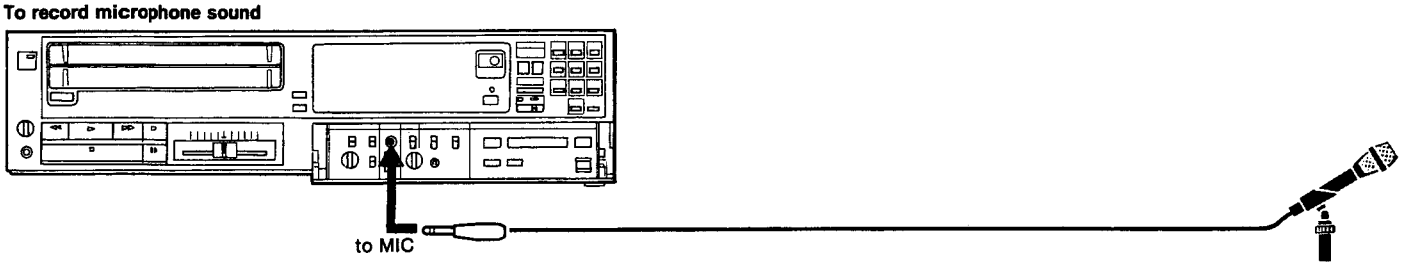
Conventional audio track : previously recorded sound will be erased and new sound will be recorded.

Video/audio FM track : Previously recorded picture and Beta hi-fi recording will remain.

## CONNECTIONS

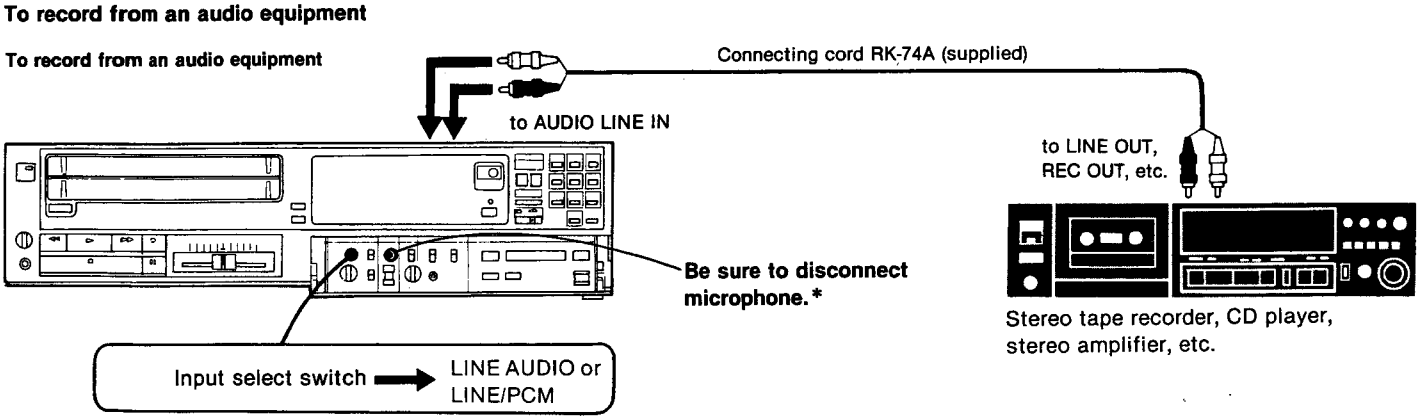
### To record microphone sound

To record microphone sound




### To record from an audio equipment

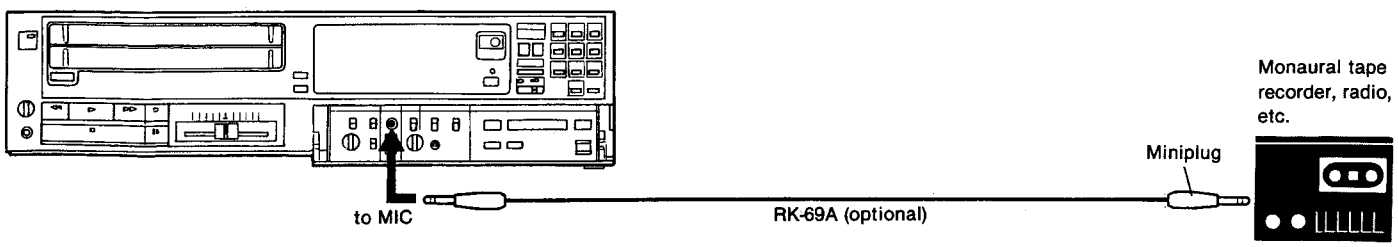
To record from an audio equipment


Connecting cord RK-74A (supplied)
to AUDIO LINE IN
to LINE OUT, REC OUT, etc.
Be sure to disconnect microphone.*
Input select switch
LINE AUDIO or LINE/PCM
Stereo tape recorder, CD player, stereo amplifier, etc.

● The sound recorded is monaural.

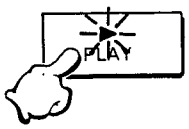
* When a microphone is connected to MIC jack, the audio input signals from the AUDIO LINE IN jacks are automatically disconnected.

### To record from a monaural tape recorder or radio

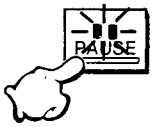


## HOW TO DUB

**1** Play the tape back.

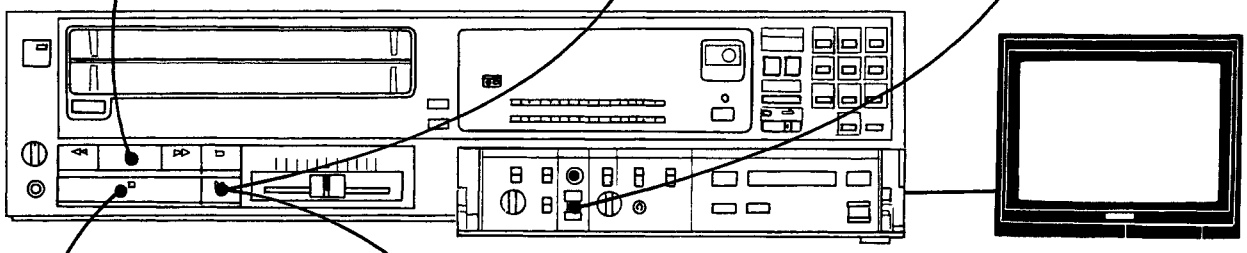



**2** Set to the pause mode
at the point where audio dubbing is to start.



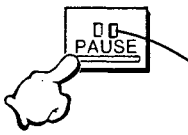

**3** Press the DUB button.

The PLAY button indication goes off.



**To stop dubbing**
Press the ■ STOP button.
Unplug the microphone or audio equipment.

**4** Release the pause mode and start playing the audio source.




Goes off.

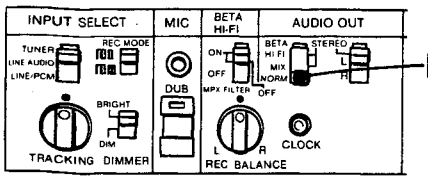
To momentarily stop the tape during dubbing
Press the ❚❚ PAUSE button.

**Automatic pause release**
To protect the video heads and the tape, the pause mode will be automatically released after about 8 minutes and recording will resume.

**To record from the beginning of the tape**
While pressing the DUB button, press the ▶ PLAY button.
Audio dubbing will start immediately.

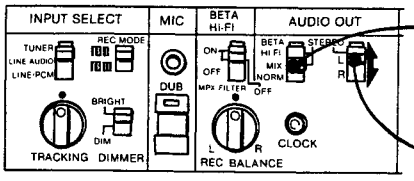
## TO MONITOR THE SOUND

**To only monitor the sound being dubbed or the already dubbed sound**




Audio track select switch ⇨ NORM

**To simultaneously monitor both the sound being dubbed or the already dubbed sound and the previously recorded Beta hi-fi sound**




AUDIO OUT Audio track select switch ⇨ MIX

AUDIO OUT Beta hi-fi select switch ⇨ proper position

## TO START RECORDING FROM A PARTICULAR POINT

You can decide the starting point for recording while watching the playback picture or by searching for the point using the Betascan and Beta SkipScan functions.

1 Search for the point where you wish to start recording on the tape by playing back the tape or using the Betascan or the Beta SkipScan function.
2 Press the ❚❚ PAUSE button to stop the tape where you wish to start recording.
3 Slide the ● RECORD switch. The recorder will enter the record pause mode and the picture selected by the input select switch will appear on the monitor screen.
4 Press the ❚❚ PAUSE button to release the pause mode. Recording starts.

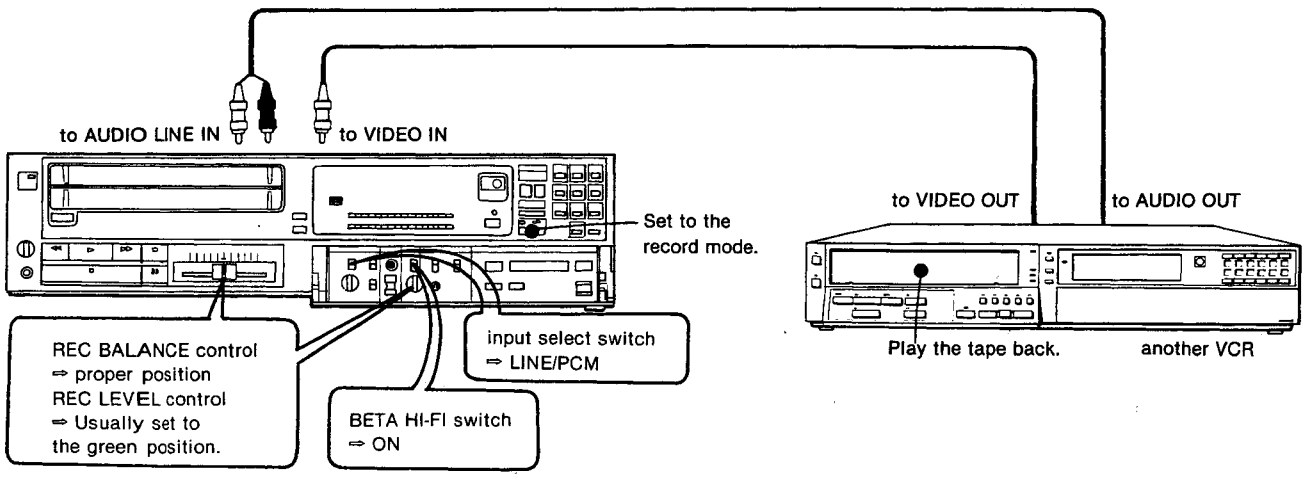
●At the starting point of recording, the picture may be distorted or streaks may appear but these are not a problem.

## TAPE COPY

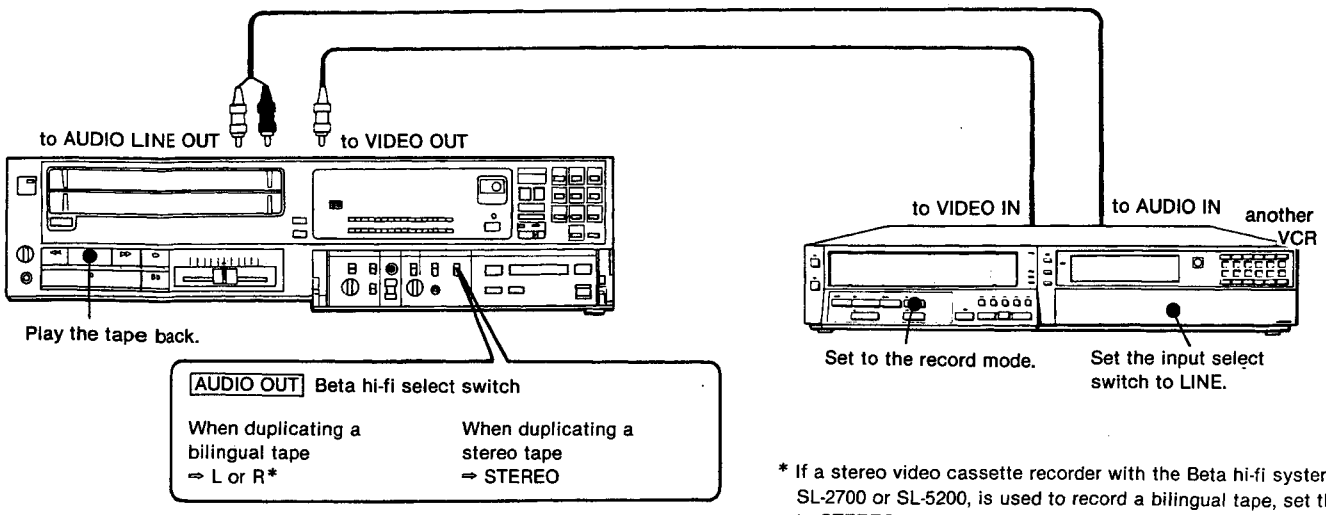
To duplicate a home movie tape you will need two video cassette recorders.

Before operating, select the appropriate recording mode ( BII or BIII ) of the recording VCR.

**To duplicate a home movie tape from another VCR to the SL-2710**



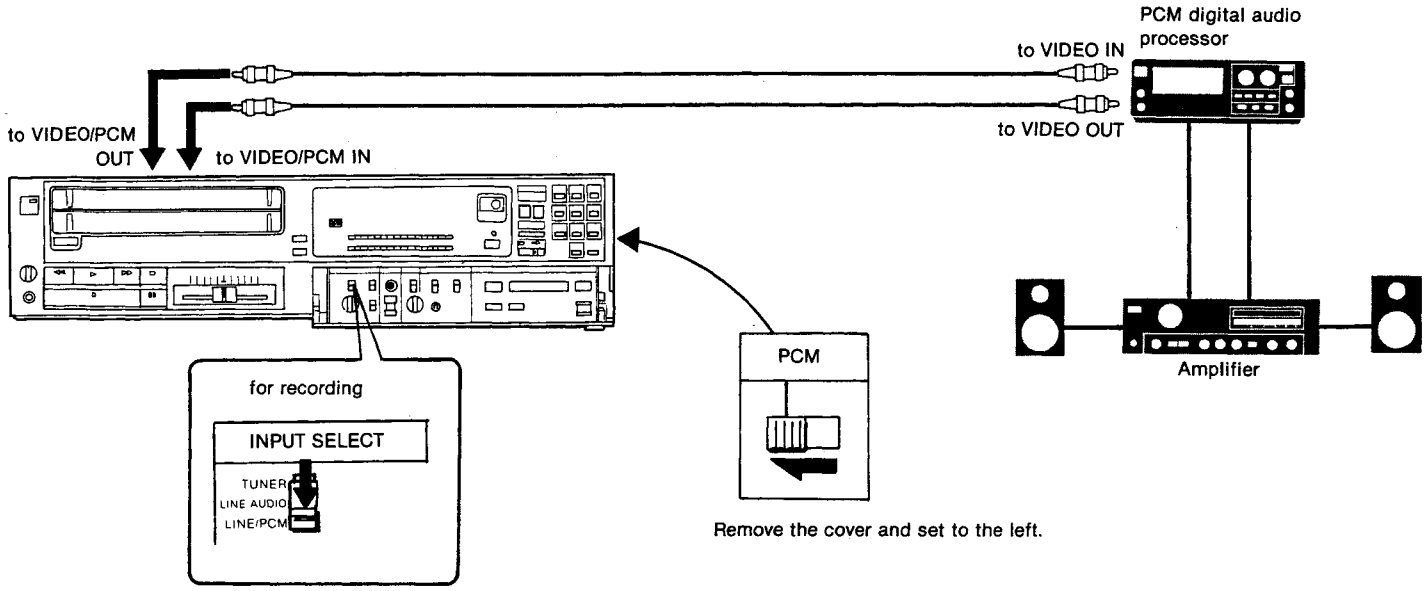

**To duplicate a home movie tape from the SL-2710 to another VCR**


to AUDIO LINE OUT
to VIDEO OUT
to VIDEO IN
to AUDIO IN
another VCR
Play the tape back.
Set to the record mode.
Set the input select switch to LINE.
AUDIO OUT Beta hi-fi select switch
When duplicating a bilingual tape
⇨ L or R*
When duplicating a stereo tape
⇨ STEREO

* If a stereo video cassette recorder with the Beta hi-fi system, such as SL-2700 or SL-5200, is used to record a bilingual tape, set the switch to STEREO.

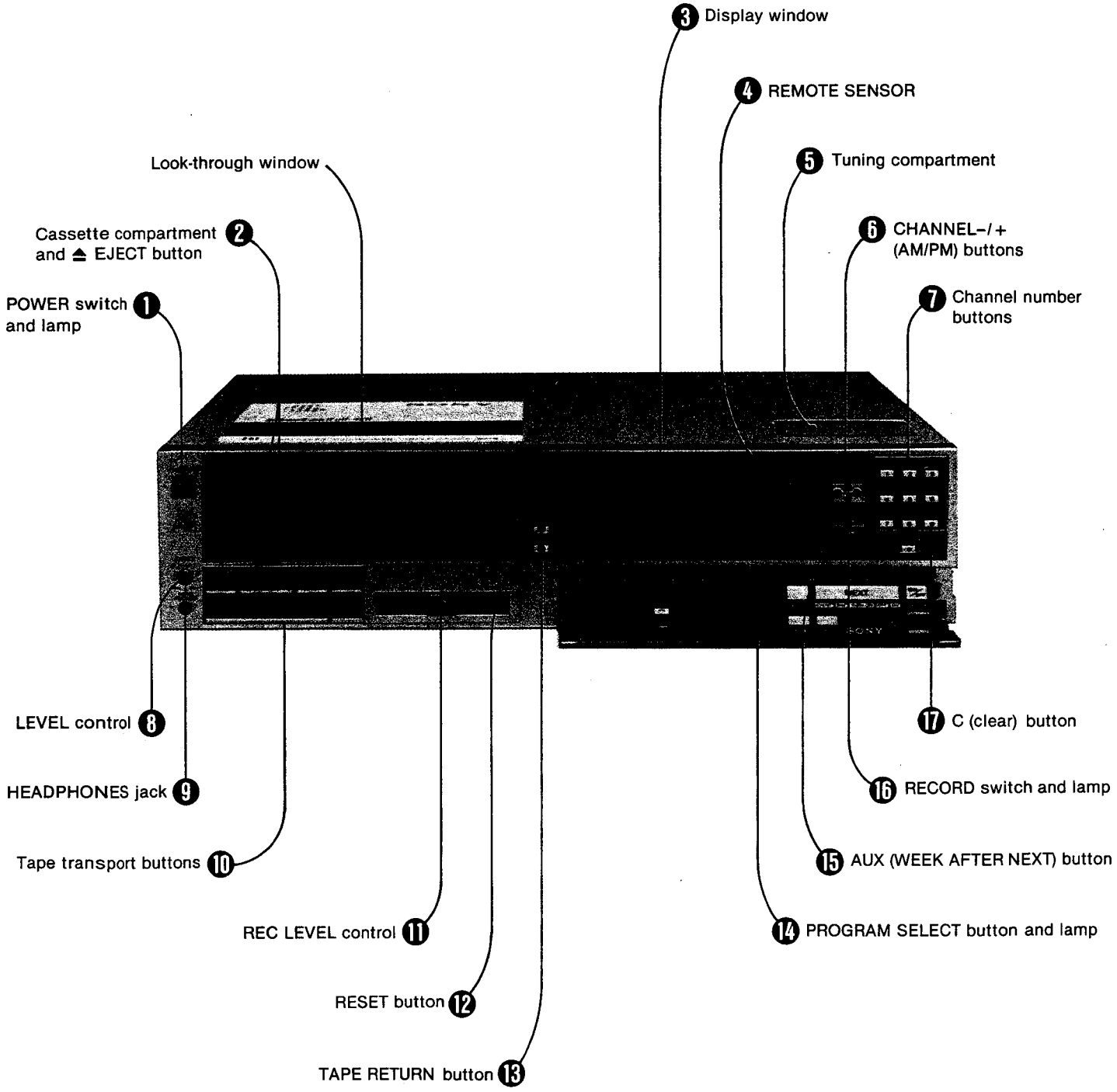
# PCM RECORDING AND PLAYBACK

For PCM recording and playback connect a PCM digital audio processor as shown.




- For optimum results, use a video cassette with a model number L-500 or less (L-250, L-125, etc.) and set the REC MODE selector to SP.
- For details, refer to the instruction manual furnished with the digital audio processor.
- After PCM recording/playback return the PCM switch to the right and put the cover on again.

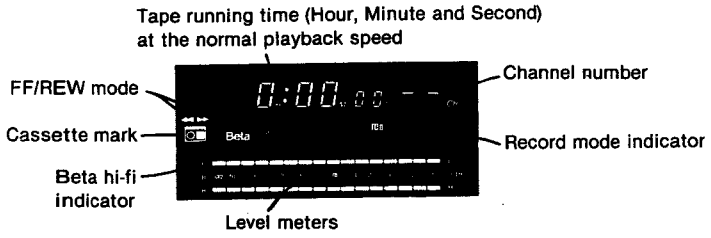
# LOCATION AND FUNCTION OF PARTS AND CONTROLS


3 Display window
4 REMOTE SENSOR
Look-through window
5 Tuning compartment
Cassette compartment and ⏏ EJECT button 2
6 CHANNEL–/+ (AM/PM) buttons
POWER switch 1 and lamp
7 Channel number buttons
LEVEL control 8
17 C (clear) button
HEADPHONES jack 9
16 RECORD switch and lamp
Tape transport buttons 10
15 AUX (WEEK AFTER NEXT) button
REC LEVEL control 11
14 PROGRAM SELECT button and lamp
RESET button 12
TAPE RETURN button 13

**❶ POWER switch and lamp**
Press to turn the power on. The lamp lights up. To turn the unit off, press the switch again.
The timer section will continue to operate and the time will be displayed even if the power switch is off, as long as the ac power cord is plugged into a working outlet.

**❷ Cassette compartment and ⏏ EJECT button**
After turning on the recorder, insert a cassette to be recorded or played back. To remove the cassette, press the ⏏ EJECT button.

**❸ Display window**
When the recorder is turned on, this shows:

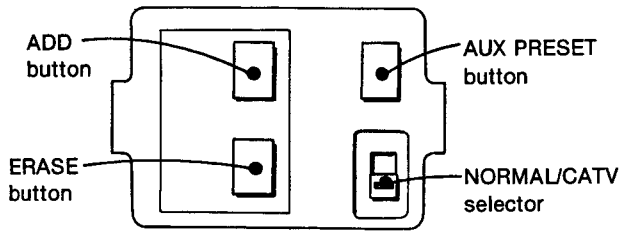



When the recorder is turned off, the display shows the day and the current time.

During timer setting or checking, it shows the timer program.

**❹ REMOTE SENSOR**
Detects the infrared transmitting signal from the supplied Remote Commander.

**❺ Tuning compartment**




NORMAL/CATV select switch: Set to NORMAL to view normal TV programs and to CATV to view CATV programs.
ADD button: Press to add desired channels when pressetting channels.
ERASE button: Press to erase inactive channels.
AUX PRESET button: To preset the output channel number of the captions decoder press this button.

**❻ CHANNEL –/+ (AM/PM) buttons**
Press the – or + button to scan the prememorized channels lower or higher respectively.
During clock or timer setting, press to select AM or PM.

**❼ Channel number buttons**
Press to select the channels directly, time digits, day of the week, or week with the appropriate buttons.
For channels 1 through 9, press the 0 button first. When you select an incorrect tens-digit or forget to first press 0 for channels 1 through 9, press the C button. The display will show "––".

**❽ LEVEL control**
Adjust the sound volume of the connected headphones.

**❾ HEADPHONES jack (stereo minijack)**
Connect headphones here to monitor the sound,

**❿ Tape transport buttons**
◀◀ REW (rewind) button: Pressing this button during playback enables you to see a high-speed playback in reverse (Betascan).
▶ PLAY button: When the ◀◀ REW button is pressed at the same time as this button, the tape will automatically play back after it has been completely rewound.
▶▶ FF (fast-forward) button: Pressing this button during playback lets you see high-speed playback (Betascan).
×2 (double-speed) button: Press during playback to get the double-speed playback picture and sound. Press again to resume normal playback.
■ STOP button: Press to stop the tape.
❚❚ PAUSE button: Press to stop the tape for a moment during recording or playback. Press again to release the pause mode.

**⓫ REC LEVEL control**
Adjust the recording level when the BETA HI-FI switch is set to ON. Usually set to 5 (green position). When you record sound from other audio equipment, adjust manually to the proper position to get the optimum result.

**⓬ RESET button**
Press to reset the time counter to "0H00M00S".

**⓭ TAPE RETURN button**
Press this button in the stop mode to return the tape around the "0H00M00S" point on the time counter.

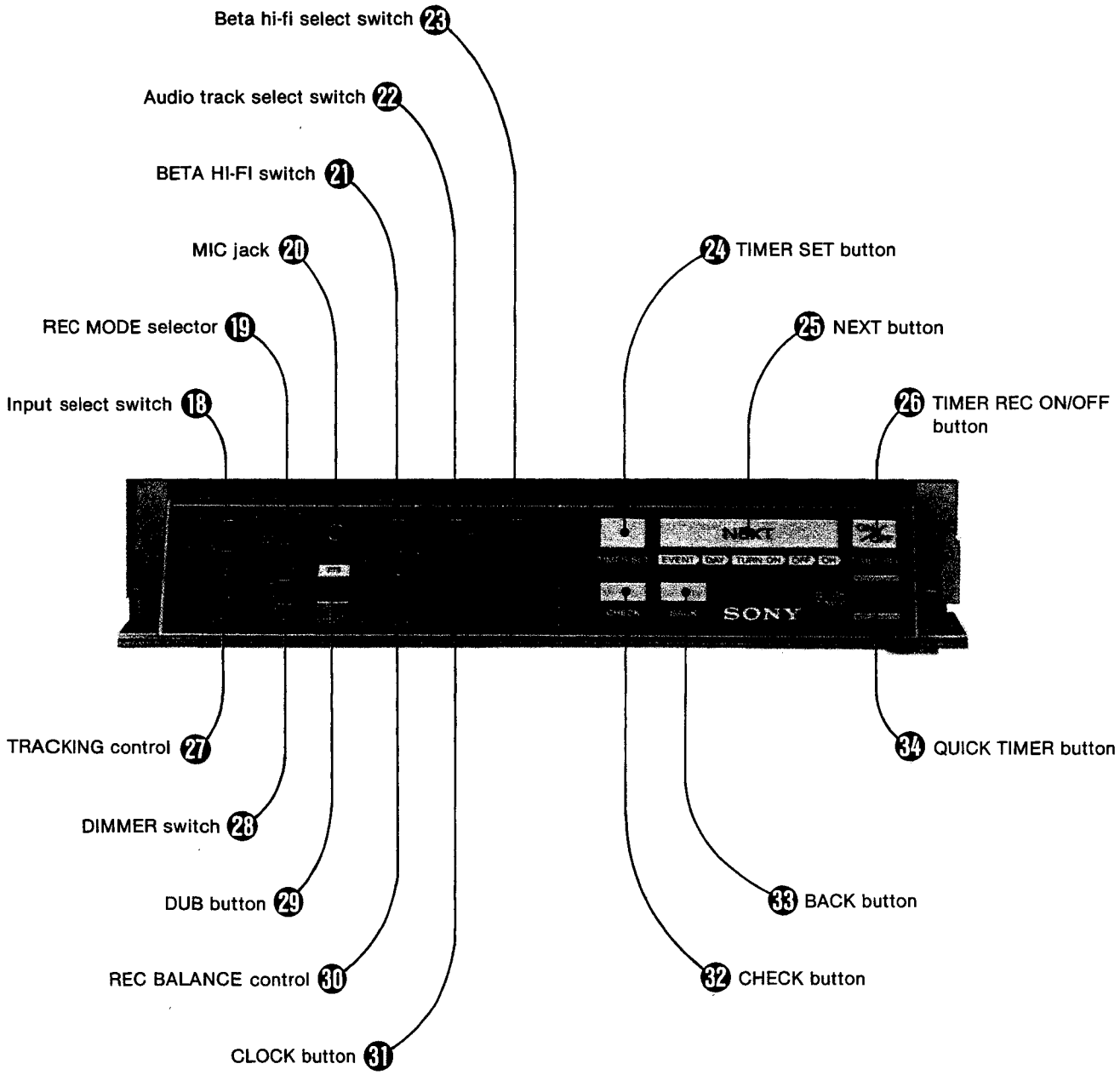
**⓮ PROGRAM SELECT button and lamp**
To view a TV program selected by a channel select button on the recorder or to monitor the picture being recorded press to set the button to ON-VTR, so that the VTR lamp lights up.
The recorder is automatically set in this mode when the PLAY button is pressed.
To view a TV program in the usual manner, press this button so that the lamp goes off (OFF-TV). When the recorder is turned off, the recorder is automatically set in this mode.

**⓯ AUX (WEEK AFTER NEXT) button**
Press to select the program from the RF IN AUX terminal.
"PP" appears in the channel display.
During timer setting, press to select the week after next.

**⓰ RECORD switch and lamp**
Slide to the right to start recording. While a recording is being made, the lamp lights up.

**⓱ C (clear) button**
Press to erase the contents of a timer program or incorrect channel numbers.

**Behind front panel**



**⑱ Input select switch**
Select the input signal to be recorded.
TUNER: for TV programs
LINE AUDIO: for audio signals from the AUDIO LINE IN jacks on FM simulcast recording
LINE/PCM: for video and audio signals from the VIDEO IN/PCM IN jack on PCM recording

**⑲ REC MODE (record mode) selector**
This selects the recording speed, Ⓑ II or Ⓑ III.
The recording time of any given cassette in the Ⓑ III mode is 1.5 times that in the Ⓑ II mode.
The playback speed is automatically set regardless of this switch.

**⑳ MIC jack (mini type)**
Connect a microphone, a monaural tape recorder or a radio here to record music or commentary on the conventional audio track. If it has a phone-type plug, use a plug adaptor, such as the Sony PC-1A.

**㉑ BETA HI-FI switch**
ON: Usually set to this position. A program is recorded on the Beta hi-fi system.
**MPX FILTER OFF:** If you wish to record on the Beta hi-fi system without the multiplex filter which cuts off the high-frequency signals, set to this position.
**OFF:** If you wish to record a tape only in the conventional way, set to this position.

**㉒ Audio track select switch**
Select the sound for playback.
BETA HI-FI: for Beta hi-fi recorded sound on the video track
MIX: for the mixed sound of the video track (Beta hi-fi sound) and the conventional audio track
NORM: for the sound on the conventional audio track

**㉓ Betahi-fi select switch**
Select the channel(s) of the Beta hi-fi sound to be played back. Available only when the audio track select switch is set to BETA HI-FI or MIX.
STEREO: Usually set to this position. The stereo sound will be heard.
L: To monitor the language recorded on the L channel of a bilingual program.
R: To monitor the language recorded on the R channel of a bilingual program.

**㉔ TIMER SET button**
Press to set the timer for recording.

**㉕ NEXT button**
Press to memorize the item set during clock or timer setting.

**㉖ TIMER REC ON/OFF button**
Press to set the recorder in the timer recording standby mode. The TIMER REC indicator will light up in the display window.

**㉗ TRACKING control**
If streaks or snow appears in the playback of a cassette which has been recorded on another video cassette recorder, turn this knob to obtain the best possible picture. Return the control to the center position after viewing the picture.
The center detent position provides the correct tracking for the cassettes recorded on this recorder.

**㉘ DIMMER switch**
Select the brightness of the display, BRIGHT or DIM.

**㉙ DUB (audio dub) button**
Press during playback pause mode to record music or commentary on the conventional audio track of any recorded video tape.

**㉚ REC BALANCE control**
Adjust the sound volume of each channel on Beta hi-fi recording. Turn toward L or R to increase the left or right channel sound.

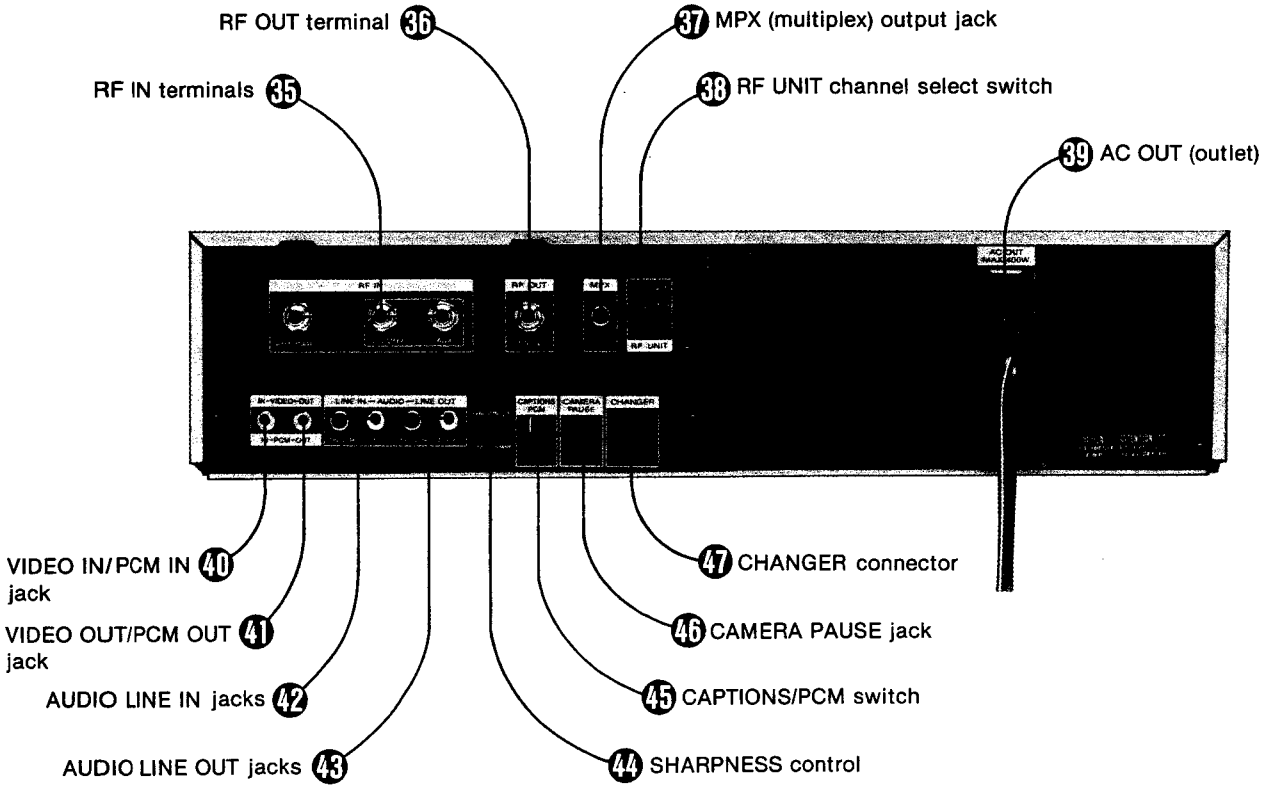
**㉛ CLOCK button**
Press to set the clock.

**㉜ CHECK button**
Press to check the contents of a timer program.

**㉝ BACK button**
Press to go back to the previous step during clock or timer setting.

**㉞ QUICK TIMER button**
Press to start the timer recording soon. The recording time is selected in 30 minute intervals, from $0_H{:}30_M$ to $5_H{:}00_M$. Press this button as many times as required until the desired recording time is displayed.

**Rear panel**


RF OUT terminal 36
37 MPX (multiplex) output jack
RF IN terminals 35
38 RF UNIT channel select switch
39 AC OUT (outlet)
VIDEO IN/PCM IN 40 jack
VIDEO OUT/PCM OUT 41 jack
AUDIO LINE IN jacks 42
AUDIO LINE OUT jacks 43
47 CHANGER connector
46 CAMERA PAUSE jack
45 CAPTIONS/PCM switch
44 SHARPNESS control

**35 RF IN terminals**
ANT/CABLE: Connect a VHF and/or UHF TV antenna or CATV cable here.
TO CONV: Connect to the input of a captions decoder.
AUX: Connect to the output of a captions decoder.

**36 RF OUT terminal**
Connect to the VHF and/or UHF antenna terminal(s) of a TV receiver. The signal of a VCR program converted to channel 3 or 4 and the VHF/UHF TV signal will be supplied to the TV receiver.

**37 MPX (multiplex) output jack (phono type)**
This allows a special adaptor to be connected for any future multichannel sound (stereo, bilingual, etc.) TV broadcasts.

**38 RF UNIT channel select switch**
Selects the channel for the VCR program and the output from the RF OUT connector. Set the switch to 3 CH or 4 CH, whichever is not active in your area.

**39 AC OUT (outlet)**
This unswitched outlet supplies ac power to video or audio equipment with power consumption under 400 watts.

**40 VIDEO IN/PCM IN jack (phono type)**
Connect the video output of another video cassette recorder, camera adaptor, etc. For PCM recording, connect a PCM digital audio processor.

**41 VIDEO OUT/PCM OUT jack (phono type)**
Connect the video input of a color monitor, TV or another video cassette recorder. For PCM playback, connect a PCM digital audio processor.

**42 AUDIO LINE IN jacks (phono type)**
Connect the line output of a sound source such as a tape recorder, an amplifier, a radio, or the audio output of another video cassette recorder. For FM simulcast recording, connect an FM tuner here.

**43 AUDIO LINE OUT jacks (phono type)**
Connect the audio input of a color monitor, TV, another video cassette recorder, or connect to a stereo system.

**44 SHARPNESS control**
Adjusts the sharpness of the picture in the playback mode.

**45 CAPTIONS/PCM switch**
Usually set to the right position. For PCM recording and playback using a PCM digital audio processor, or for receiving captioned TV programs, remove the cover and set this switch to the left position.

**46 CAMERA PAUSE jack (special mini type)**
When recording with a video camera, connect the Sony HVA-220 ac adaptor to this jack.

**47 CHANGER connector**
Connect an optional AG-500 auto cassette changer.

# SPECIFICATIONS

**System**

Video recording system
Rotary two-head helical scanning
Audio recording system
Beta hi-fi system (2 channels)
(Recording on the conventional audio track is monaural)
Video signal — EIA standard, NTSC color
Usable cassettes — Cassettes having the mark [B]
[B]III: 1.33 cm/sec.
[B]II: 2.0 cm/sec.
[B]I: 4.0 cm/sec. (only for playback)
Maximum recording time
[B]III: 5 hours
[B]II: 3 hours 20 min.
(with Sony L-830 cassette)
Fast-forward and rewind time
Approx. 3½ min. (L-500)
Audio frequency response
Beta hi-fi OFF
[B]II: 50 - 10,000 Hz
[B]III: 50 - 7,000 Hz
Bata hi-fi MPX FILTER OFF
[B]II, [B]III: 20 - 20,000 Hz
Wow and flutter — Beta hi-fi ON
Less than 0.005% WRMS
Dynamic range — Beta hi-fi ON
More than 80 dB

**Tuner section**

Channel coverage — VHF channels 2 - 13
UHF channels 14 - 83
CATV channels 1 - 99
(A - 8 - W + 58, See page 12.)
VHF output signal — Channel 3 or 4 (selectable)
75 ohms, unbalanced
Antenna — 75-ohm antenna terminal for RF IN
ANT/CABLE, TO CONV and AUX

**Inputs and outputs**

Video output — Phono jack (1)
1 V p-p ±0.5 V p-p, 75 ohms, unbalanced, sync negative
Video output — Phono jack (1)
1 V p-p ±0.5 V p-p, 75 ohms, unbalanced, sync negative
Audio input — Phono jacks (2)
−10 dBs (0 dBs = 0.775 V rms), more than 47 k ohms
Audio output — Phono jacks (2)
−10 dBs (at load impedance 47 k ohms)
More than 10 k ohms
Camera pause — Special minijack (1)
Mircophone input — Minijack (1)
−60 dBs, for low-impedance microphone
Headphone jack — Stereo minijack (1)
−26 dBs, 8 ohms

**Timer section**

Clock — Quartz-lock system
Time indication — 12-hour cycle
Timer setting — Only to start and stop recording
9 programs can be set over 21 days at max.
Power back up — Self-charging battery incorporated
Back-up duration: up to 60 minutes at one time (after the battery has been charged at least 40 hours.)

**General**

Power requirements — 120 V ac ±10%, 60 Hz ±0.5%
Power consumption — 38 W (VCR)
50 W (max. with accessories)
AC outlet — Unswitched max. 400 W
Operating temperature
5°C to 40°C (41°F to 104°F)
Storage temperature — −20°C to +65°C (4°F to +149°F)
Dimensions — Approx. 430 × 105 × 375 mm (w/h/d)
(17 × 4¼ × 14¾ inches)
incl. projecting parts and controls
Weight — Approx. 11.8 kg (26 lb) net

**Remote Commander RMT-318**

Remote control system
Infrared control
Power requirements — 3 V dc, 2 size AA batteries (IEC designation R6)
Dimensions — Approx. 65 × 20 × 153 mm (w/h/d)
(2⅝ × 13/16 × 6⅛ inches)
incl. projecting parts and controls
Weight — Approx. 140 g (5 oz)
incl. batteries

**Accessories supplied**

Betamax video cassette tape ..... 1
75-ohm coaxial cable with F-type connectors (2 m, 6 feet) ..... 2
Antenna connector EAC-25 ..... 1
Connecting cord RK-74A ..... 1
Remote Commander RMT-318 with two size AA batteries ..... 1

Design and specifications subject to change without notice.

# TROUBLE CHECKS

If any difficulty should arise during operation, check through this list of symptoms and possible causes. Should the difficulty persist, unplug the unit and contact the dealer from whom this unit was purchased, or a local Sony authorized service facility.
Before going through the check list below, first check to see whether the power cord is connected firmly to a working outlet and whether the POWER switch is turned ON.

| | Symptom | Possible causes and corrections |
|---|---|---|
| POWER | POWER switch does not function. | ●The power cord is disconnected.<br>●The recorder is in the timer standby mode.<br>Press the TIMER REC button so that the TIMER REC lamp goes off. |
| CLOCK AND TIMER | The clock has stopped at "SUN AM 12 : 00" | ●There has been a power interruption.<br>Reset the clock time and timer settings. |
| | Timer setting cannot be made. | ●The clock time is not set.<br>●The timer cannot be set during recording. |
| TV RECEPTION | TV program is not clearly displayed on the TV screen. | ●The channel for video recorder on the TV receiver is not correctly tuned.<br>●The antenna connections are not correct.<br>●The TV signal is weak. Adjust the direction of the antenna.<br>●The ac power cord of the recorder is disconnected. |
| RECORDING AND PLAYBACK | No picture on the TV screen during recording or playback. | ●The TV's channel is not set to that preset for the video recorder. |
| | Picture being recorded cannot be monitored on the TV screen. | ●Press the PROGRAM SELECT button so that the VTR lamp lights. |
| | No recording | ●The safety tab on the cassette has been removed. |
| | The desired program has not been recorded. | ●The input select switch has not been set correctly.<br>●When camera recording, the tape run/stop button on the camera has not been operated correctly. |
| | The displayed picture on the TV screen is not clear. | ●The CAPTIONS/PCM switch is set to the left.<br>●The SHARPNESS control is not properly adjusted. |
| | Streaks or snow on the picture | ●The cassette being played has been recorded on another video recorder.<br>Adjust the TRACKING control. |
| | Noisy picture | ●The video heads may be contaminated. Clean the heads using the Sony L-25CL video head cleaning cassette. For details on cleaning, refer to the instructions furnished with the cleaning cassette.<br>If the L-25CL cleaning cassette is not available in your area, have the heads cleaned at the nearest Sony service facility. |
| | Distorted or noisy sound | ●Recording level was not properly adjusted. |
| | Sound drop-outs of a Beta hi-fi recorded tape | ●The tape is defective.<br>Use a new video cassette tape. |
| | Timer recording cannot be made correctly. | ●The clock time is not set correctly.<br>●The turn-on day and the turn-on time have not been set correctly.<br>●The TIMER REC button bas not been pressed.<br>●There has been a power interruption.<br>●The cassette inserted has had the tab removed or no cassette has been inserted.<br>●The input select switch is not set to TUNER.<br>●Two or more timer settings overlap. |

| | Symptom | Possible causes and corrections |
|---|---|---|
| REMOTE CONTROL | The recorder cannot be remotely Controlled. | ●The Remote Commander is not pointed to the REMOTE SENSOR on the recorder.<br>●The Remote Commander is too far away from the recorder.<br>●There is an obstacle between the Remote Commander and the recorder.<br>●The batteries are exhausted. |
| OTHERS | The time counter does not operate even if the tape moves. | ●The tape is brand-new.<br>●It will not operate with the unrecorded portion of a tape. |
| | Cassette cannot be inserted. | ●The recorder is turned off.<br>●The cassette being inserted is reversed.<br>●Another cassette has already been inserted. |
| | The cassette cannot be ejected. | ●The recorder is turned off.<br>●The tape is moving. |
| | Audio dubbing cannot de made. | ●The cassette inserted has had its safety tab removed.<br>●The tape to be dubbed is blank.<br>●When the AUDIO LINE IN jack is used, nothing should be connected to the MIC jack and the input select switch should be set to LINE AUDIO or LINE/PCM. |
| | The tape stops suddenly during operation. | ●The safety device which protects the video cassette tape and recorder has activated. Reactivate the previous tape transport mode. |
| | The function buttons cannot be activated immediately after the cassette has been inserted into the recorder. | ●The safety device has activated.<br>Press the EJECT button to remove the cassette and re-insert the cassette. |
| | When playing back the stereo recorded tape, the sound cannot be heard in stereo. | ●Set the AUDIO OUT audio track select switch and Beta hi-fi select switch to the green positions. |
| | When playing back the bilingual program, both languages are heard. | ●Set the AUDIO OUT Beta hi-fi select switch to L or R according to the language you wish to listen. |